CENTRAL GEORGIA CORRIDOR STUDY
HPC6 and US 280
...keeping business moving in Georgia

Phase II Report

for the Georgia Department of Transportation

Prepared for

Georgia Department of Transportation

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June 2002

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1 Executive Summary

Study Area Background and Purpose

The United States Department of Transportation (USDOT) awarded the Georgia Department of Transportation (GDOT) a National Corridor Planning and Development Program grant in May 1999. The purpose of the grant is to fund an evaluation of a strategic freight corridor, designated High Priority Corridor Six (Figure 1-1), through central Georgia to more expediently connect the ports of Columbus and Savannah. The GDOT broadened the study to include a thorough evaluation of transportation, commodity movement, and economic development in the forty-five county study area in south central Georgia (Figure 1-2).

Anchored by Columbus in the west, Savannah/Brunswick in the east, and Macon/Warner Robins in the center, central Georgia's study area encompasses forty-five rural and urban counties representing characteristics typical of the state. A mix of urban and rural counties, central Georgia is strategically situated to grow into a stronger and more influential economic engine driving the state's economy south of Atlanta.

The purposes of the study are (1) to assess the area's existing transportation infrastructure by focusing on its capability to transport goods and conduct trade in the future, (2) to define infrastructure and technology that fosters freight movement, and (3) to negate adverse environmental and social consequences of potential improvements.

The Phase 1 report included a compilation of all activities associated with the corridor evaluation elements of the scope of work. The intent of the Phase I report was to provide a baseline assessment of the economies and infrastructure of central Georgia. Phase 1 work is the foundation for activities in Phase 2 that begin to identify short and long-term transportation infrastructure needs and potential solutions within the defined study area.

The Phase 2 report represents the intermodal transportation system evaluation and is intended to define base and future traffic conditions, thereby identifying the associated needs along the corridor. The commodity flow and economic profile data developed in Tasks 1.6 and 1.7 have been used to construct baseline traffic estimates. Demographic data collected and mapped in Task 1.8 was used to establish "background" (or non-freight) traffic in areas where travel demand forecasts do not exist. Travel demand model data supplement the traffic forecasts where it exists along the corridor.

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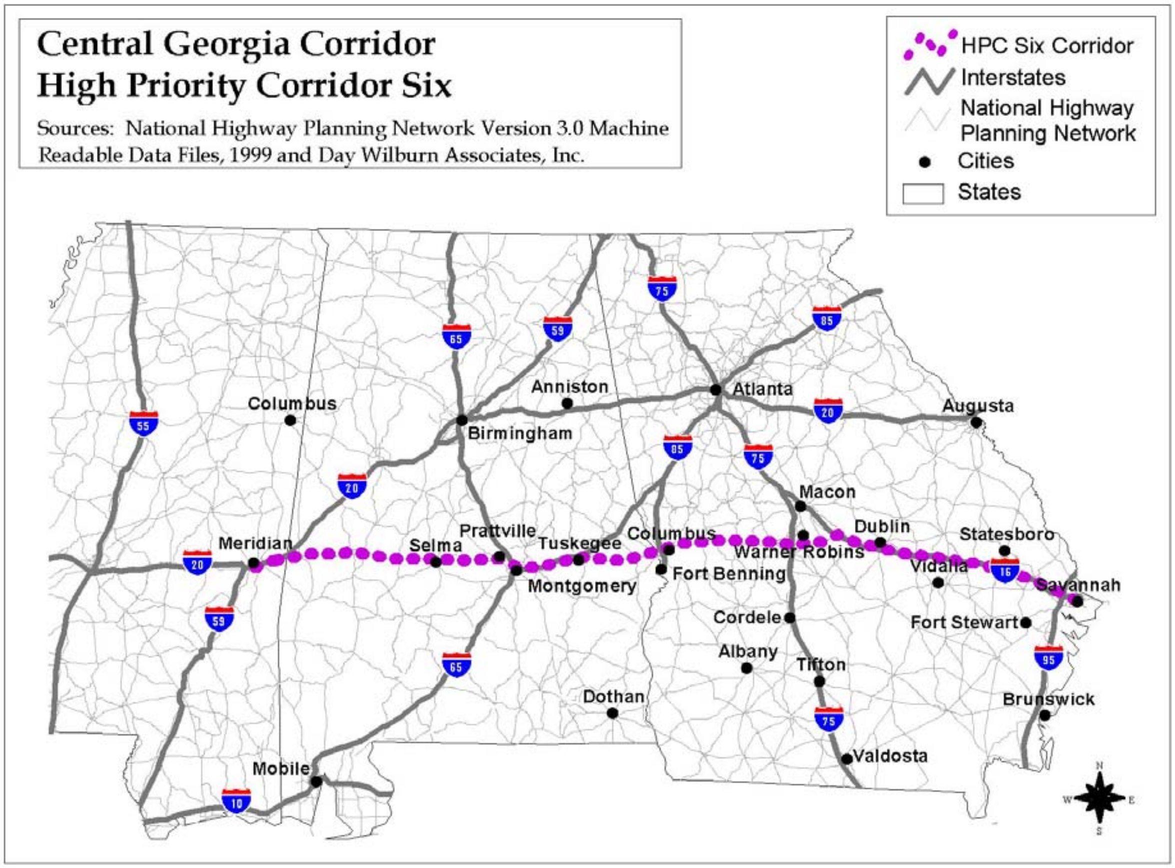
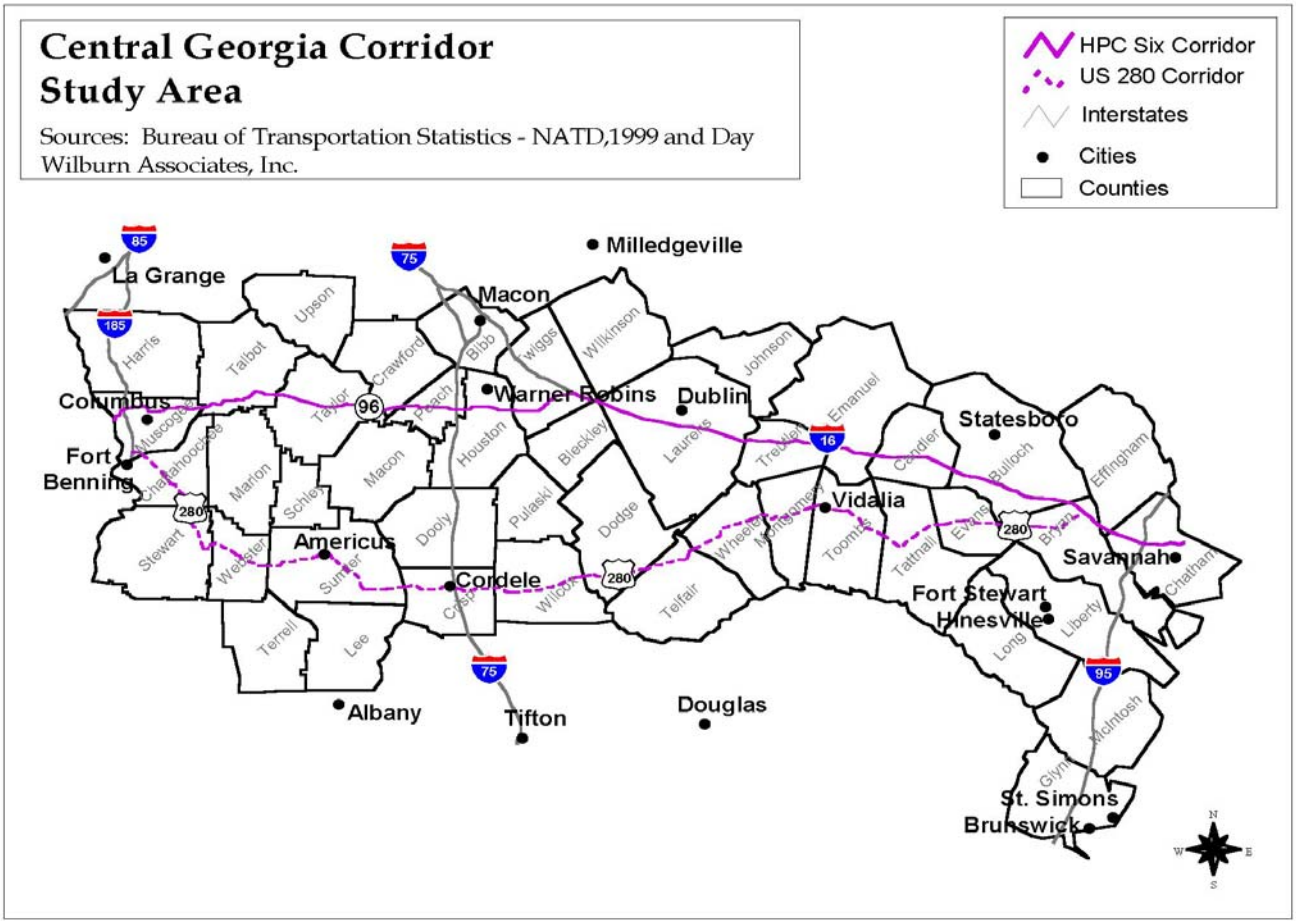
Figure 1-1: High Priority Corridor Six



The Phase 2 report contains the following sets of information:

- Projections of freight movement, indicating tonnage, mode, and number of vehicles within the corridor and its area of influence.
- A GIS-based system that links the databases documenting freight and non-freight traffic levels, volume to capacity ratios, deficiencies in the transportation system now and projected deficiencies in the future, and currently proposed projects.
- Identification of the potential set of system improvements that address the deficiencies identified.
- Evaluation of the impact of additional freight traffic on the existing GDOT maintenance program and some possible ways of addressing such impacts.
- Documentation of stakeholder workshops.

Figure 1-2: Central Georgia Corridor project map



Summary of Key Findings

The outcome of Phase 2 includes defining physical and operational constraints to freight movement and any constraint in the overall reliability of the transportation system, and investigation of possible solutions to any deficiencies found. This information will then be used to develop recommendations in Phase 3 of the study.

It is important to point out that deficiencies defined in Phase 2 do not necessarily equate to transportation projects in phase 3. Because of the magnitude and geographic extent of the study, each technical assessment has been performed in a very systematic way using data and information from large statewide and national data sources. The information has been augmented with a substantial number of personal interviews to capture potential transportation deficiencies -- particularly as they relate to freight and goods movement. The deficiency assessment has undergone a detailed review by GDOT staff and the project stakeholders to ensure that all system deficiencies are captured and clearly characterized. However, projects may not result, in Phase 3, if the deficiency is found to be unrelated to freight movement. Also, if a deficiency has already been recognized by GDOT, and is in the six year work plan, it will not be studied further as a part of the Central Georgia Corridor Study. The goal of the study is to improve commodity flow by identifying deficiencies in the movement of goods and propose solutions to currently undetected deficiencies

In analyzing the deficiencies data, three major organizing principles for the material became obvious. Transportation deficiencies may be related to: (1) reliability of the system, including cost and speed of freight delivery; (2) economic stability and growth in the study corridor; and (3) system safety and maintenance. Lists of transportation deficiencies were developed along these guidelines.

Many of the system deficiencies included in this document address the overall safety and efficiency of the transportation system either as a result of traffic congestion or safety issues. In many cases they directly relate to the overall economic stability and growth of central Georgia. Most of the transportation system issues are localized in nature and are not systemic to the entire study area.

Consistent with Phase 1 findings, many of the congestion and safety deficiencies focus on the major towns, cities, and the areas around the Port of Savannah. Specifically, roadway segments approaching or at capacity are primarily in and around Columbus, Macon, and Savannah areas. High traffic segments also exist generally on I-95 and on sections of State and U.S. highways throughout the corridor, especially at or near key junctions such as Americus and Dublin.

The forecast of truck volumes shows a continuation of this trend. The I-95 and I-75 corridors are projected to be at capacity as well as U.S. 19 through Americus. Areas around Columbus, Savannah and Macon/Warner Robins are also congested. The pattern of congestion is consistent between the current year and the forecast year of 2025.

Other deficiencies discovered during the course of Phase 2 can be characterized as recommended "best practices" for future construction or rehabilitation of existing intersections, roadways, or bridges that are critical to efficient and safe freight movement. These best practices could include shoulder widening, including the inside shoulders of interstates; bridge replacements; intersection resurfacing; railroad crossing grade separations; and whitetopping.

Many of the deficiencies identified in this study phase are already being addressed by the Construction Work Program (CWP) and Governor's Road Improvement Program (GRIP) projects. Projects in the three-year State Transportation Improvement Program (STIP) are included in these groupings.

There are some deficiencies however, that are not addressed in the foreseeable future by any current program. As the Central Georgia Corridor Study continues into Phase 3 the focus will narrow to these projects that will make a measurable difference in the ability of the region to compete in terms of freight flow and trade.

2 Traffic Projections

Background and Purpose

The primary goal of Phase 2 of the Central Georgia Corridor Study is to determine physical and operational constraints to freight movement and any constraints in the overall reliability of the transportation system. Toward this end, information on the baseline and future traffic conditions through the Corridor is necessary to identify needs.

The commodity flow and economic profile data developed in Phase 1 have been used to construct baseline traffic estimates for the highway and rail systems. Demographic data were used to establish "background" (non-freight) highway traffic in areas where traffic demand forecasts do not exist. Highway travel demand model data were used to supplement existing traffic forecasts in the Corridor. Ultimately, this information was used to develop current and forecast freight flows for the study area.

Finally, to facilitate the use of these traffic projections in the Phase III alternatives analyses, a methodology for assessing potential changes in mode share (truck vs. rail vs. water) was defined, and a Roadway Network Planning Tool was created to quantitatively test highway network impacts of alternatives.

Truck Freight Flows

Overview of Methodology

Existing Transearch database truck tonnages that were developed in the commodity flow analysis of Phase 1 were first converted to vehicle equivalents (i.e., truck trips) using Vehicle Inventory and Use Survey (VIUS) data for Georgia. The VIUS data provides a range of average weights for trucks carrying different commodity types over five distance classes. This information was joined to the Transearch database files with a set of look-up tables. Ultimately, each record in the Transearch database – specifying a commodity type and travel distance – was matched with the appropriate factor for converting from tons to truck equivalents. Once the annual tonnage for each record was appended with a corresponding annual vehicle equivalent, the annual truck trip table was converted into a daily truck trip table. The annual trips were divided by 300 days to calculate the daily truck trips. The Highway Capacity Manual indicates that the truck traffic generation rate is approximately equal from Monday to Friday, but drops to about 44 percent of the average weekday levels during the weekends. Adding five days and two days, at 44 percent each, yields 5.88 days per week or 306 days per year of trucking. This was further refined by deducting six days for federal holidays on which little activity is expected (New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving and Christmas) resulting in an adjustment factor of 300 truck days per year.

Current Freight Flows

The factors used to convert the annual tonnage to truck volumes are developed from the national VIUS database, which contains 105,545 records of which 1,953 contain Georgia registrations. The VIUS database includes payloads by product and distance class – including estimates of the percentage loaded and unloaded trucks – which make it possible to compute average payloads (in pounds) for all records contained in the Transearch commodity flow database. Average payloads were calculated by the five distance classes listed below:

- Local (less than 50-mile trips);
- Short (50- to 100-mile trips);
- Medium short (100- to 200-mile trips);
- Medium long (200- to 500-mile trips); and
- Long (greater than 500-mile trips).

The payloads were calculated by distance class because of the relationship between average payload, truck size, and distance. In other words, the shorter distance trips are closely associated with single-unit trucks carrying smaller average payloads. In contrast, the longer distance trips are dominated by combination tractor-trailer trucks that carry larger average payloads.

Table 2.1: Average VIUS Payload Factors by Distance Class

VIUS Commodity	Corresponding STCC2 Commodity	Avg. Payloads by Distance Class (miles) < 50	50-100	100-200	200-500	> 500
BLDGMA	32 (Clay, Concrete, Glass or Stone)	25,544	31,327	40,713	49,463	44,744
CHEM	28 (Chemicals or Allied Products)	14,728	30,867	39,240	45,245	40,547
FABMTL	34 (Fabricated Metal Products)	15,771	32,022	42,748	16,328	38,956
FARMPD	1 (Farm Products), 21 (Tobacco Products)	19,012	30,522	42,754	43,065	41,662
FURN	25 (Furniture or Fixtures)	5,113	24,153	33,270	22,224	32,265
GLASS	32 (Clay, Concrete, Glass or Stone)	25,062	11,147	36,135	60,450	27,179
LUMBER	24 (Lumber or Wood Products)	20,700	37,029	44,780	54,169	52,185
LVANML	1 (Farm Products)	22,049	18,152	9,760	4,328	26,685
MACHINE	35 (Machinery), 36 (Electrical Equipment), 38 (Instrum, Photo Equip, Optical Eq)	15,162	15,710	21,127	20,858	34,543
MINPRO	10 (Metallic Ores), 11 (Coal), 14 (Nonmetallic Minerals), 32 (Clay, Concrete, Glass or Stone)	43,509	43,064	42,138	60,364	50,800
MSCMFG	39 (Misc. Manufacturing Products)	33,334	42,680	43,304	44,794	40,990
MXDCAR	30 (Rubber or Misc Plastics), 40 (Waste or Scrap Materials), 50 (Secondary Traffic)	29,252	15,998	41,856	44,835	37,376
OTHPROD	41 (Misc. Freight Shipments	2,130	4,271	47,820	44,411	41,002
PAPER	26 (Pulp, Paper, or Allied Products), 27 (Printed Material)	27,399	29,681	39,723	43,467	38,969
PETROL	29 (Petroleum or Coal Products)	20,367	34,798	54,648	50,598	33,602
PRFOOD	9 (Fresh Fish or Marine Products)	14,853	18,790	44,574	39,055	43,185
PRIMTL	33 (Primary Metal Products)	11,509	15,004	38,998	27,272	46,112
TEQUIP	37 (Transportation Equipment)	7,455	9,258	21,916	29,321	40,878
TEXTIL	22 (Textile Mill Products), 23 (Apparel)	21,724	35,923	36,601	44,850	42,021

Source: Cambridge Systematics, Inc. analysis of VIUS data.

The product classes employed in the VIUS have a close correspondence to the Transearch commodity classes established at the two-digit Standard Transportation Classification Code (STCC) level, with the exception of VIUS categories such as "no load" (i.e., empty backhaul trips), buses, and service trucks. Those product classes that had no close fit with the two-digit STCC commodity groups were simply excluded. In all other cases, the two-digit STCC code served as a look-up table in joining the VIUS information to the Transearch commodity flow information, which was presented at the more detailed four-digit STCC level. For instance, the VIUS product category "Farm Products" corresponds to the four-digit STCC 122 (deciduous fruits), STCC 131 (bulbs, roots, or tubers), and STCC 139 (miscellaneous fresh vegetables) – among other groups – in the commodity flow database.

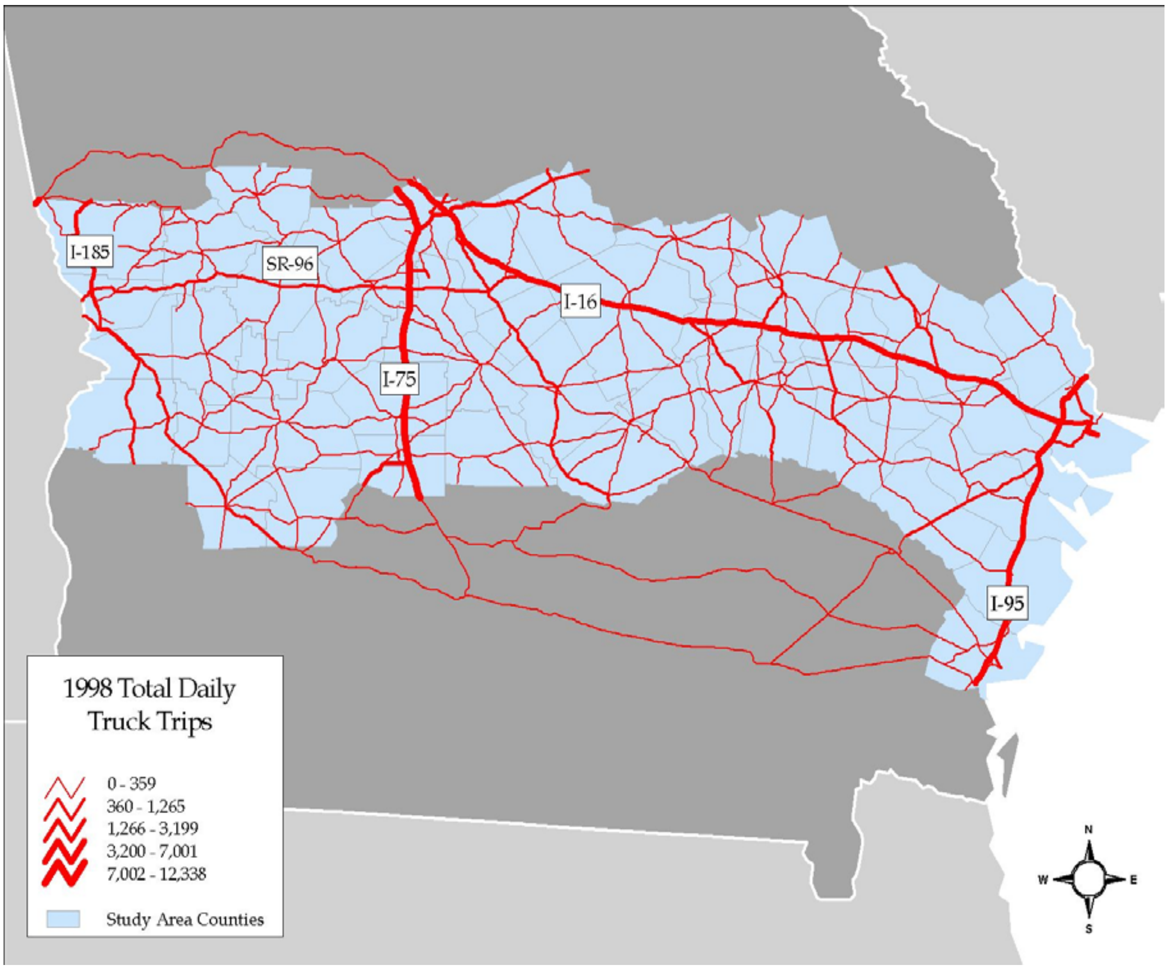
Table 2.2: VIUS Commodities with Corresponding Two-Digit STCC Names

VIUS Commodity	STCC2	STCC2 Name
Farm Products	1	FARM PRODUCTS
Live Animals	1	FARM PRODUCTS
Processed Foods	9	FRESH FISH OR MARINE PRODUCTS
Mineral Products	10	METALLIC ORES
Mineral Products	11	COAL
Mineral Products	14	NONMETALLIC MINERALS
Processed Foods	20	FOOD OR KINDRED PRODUCTS
Farm Products	21	TOBACCO PRODUCTS
Textiles	22	TEXTILE MILL PRODUCTS
Textiles	23	APPAREL OR RELATED PRODUCTS
Lumber	24	LUMBER OR WOOD PRODUCTS
Building Materials	24	LUMBER OR WOOD PRODUCTS
Furniture	25	FURNITURE OR FIXTURES
Paper	26	PULP, PAPER OR ALLIED PRODUCTS
Paper	27	PRINTED MATTER
Chemicals	28	CHEMICALS OR ALLIED PRODUCTS
Petroleum	29	PETROLEUM OR COAL PRODUCTS
Mixed Carload	30	RUBBER OR MISC PLASTICS
Textiles	31	LEATHER OR LEATHER PRODUCTS
Glass	32	CLAY, CONCRETE,GLASS OR STONE
Building Materials	32	CLAY, CONCRETE,GLASS OR STONE
Mineral Products	32	CLAY, CONCRETE,GLASS OR STONE
Primary Metal Products	33	PRIMARY METAL PRODUCTS
Fabricated Metals	34	FABRICATED METAL PRODUCTS
Machinery	35	MACHINERY
Machinery	36	ELECTRICAL EQUIPMENT
Transportation Equipment	37	TRANSPORTATION EQUIPMENT
Machinery	38	INSTRUM, PHOTO EQUIP, OPTICAL EQ
Misc. Manufactured	39	MISC MANUFACTURING PRODUCTS
Mixed Carload	40	WASTE OR SCRAP MATERIALS
Other Products	41	MISC FREIGHT SHIPMENTS
Other Products	43	MAIL OR CONTRACT TRAFFIC
Other Products	46	MISC MIXED SHIPMENTS
Mixed Carload	50	SECONDARY TRAFFIC
Other Products	50	SECONDARY TRAFFIC

Source: VIUS data.

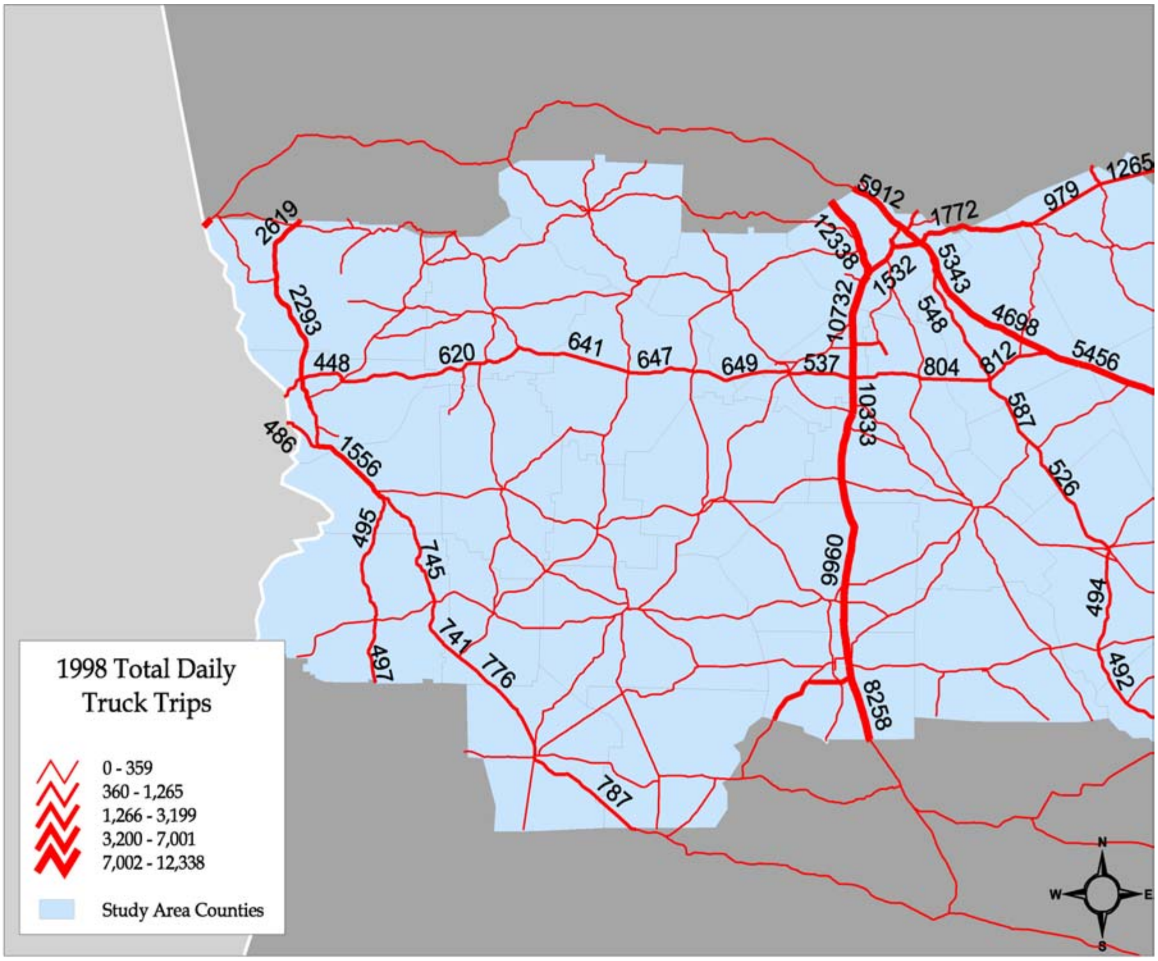
Once the VIUS and commodity flow information was linked, the derived 1998 freight flows were subsequently mapped on the study area network, shown in Figure 2.1. At the upper bound, approximately 12,300 daily truck trips flow through I-75, I-16, and I-95, whereas traffic elsewhere in the Corridor is considerably lighter. Figures 2.2-2.4 denote the number of total daily truck trips along major routes in the study area.

Figure 2.1: HPC 6 Current Total Daily Truck Trips: Corridor View



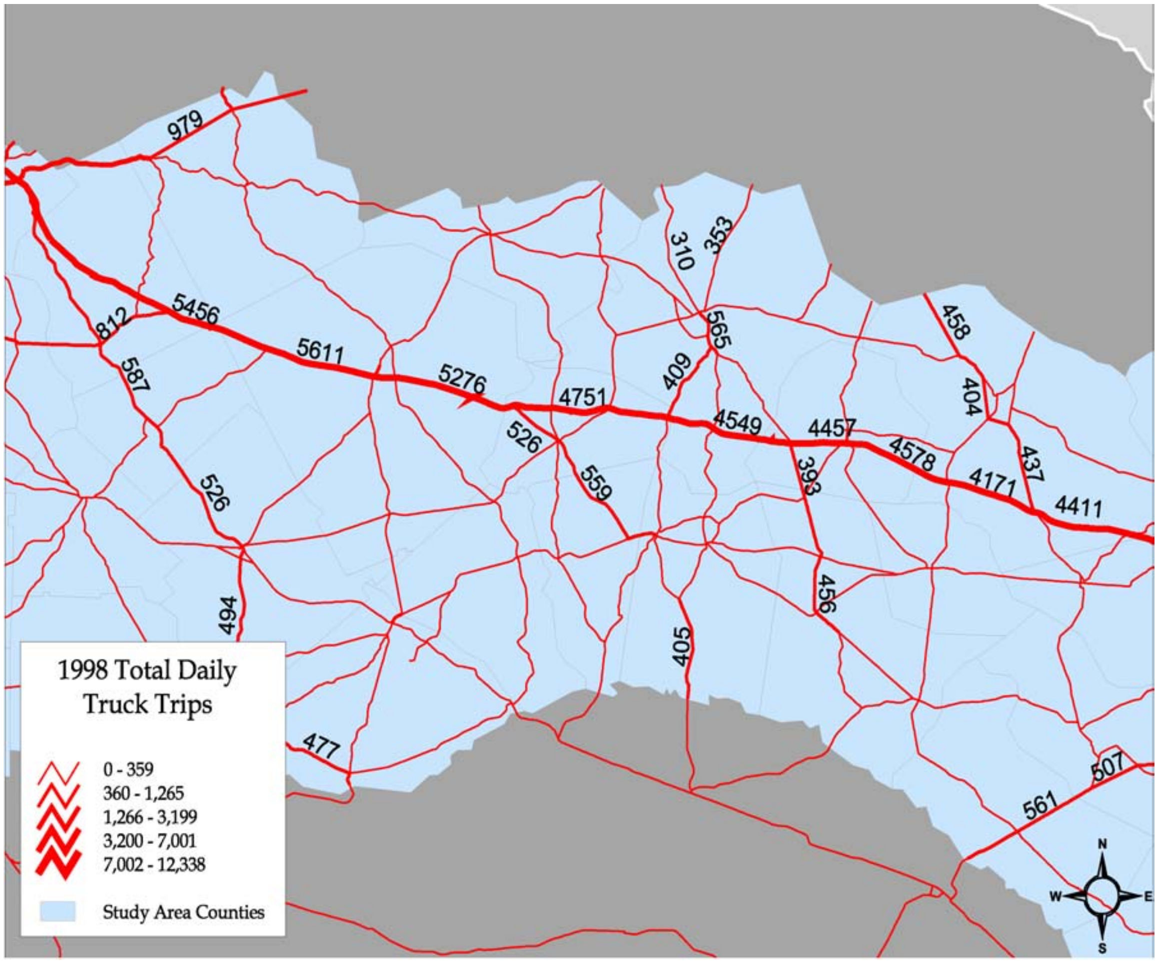
Source: Cambridge Systematics, Inc. analysis of Transearch and VIUS data.

Figure 2.2: HPC 6 Current Total Daily Truck Trips: West View



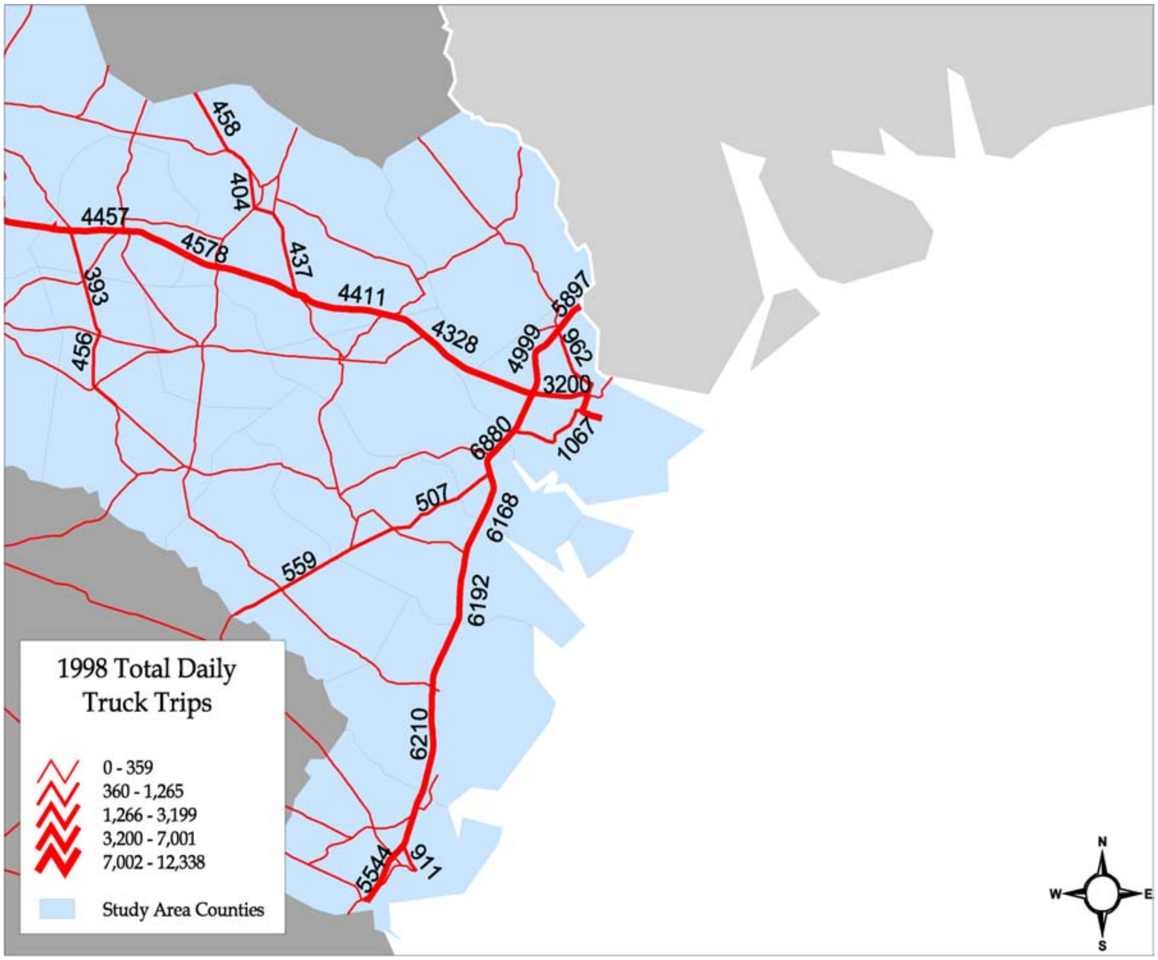
Source: Cambridge Systematics, Inc. analysis of Transearch and VIUS data.

Figure 2.3: HPC 6 Current Total Daily Truck Trips: Central View



Source: Cambridge Systematics, Inc. analysis of Transearch and VIUS data.

Figure 2.4: HPC 6 Current Total Daily Truck Trips: East View



Source: Cambridge Systematics, Inc. analysis of Transearch and VIUS data.

Current Non-Freight Annual Average Daily Traffic (AADT)

The non-freight traffic AADT data for each section of highway in the Central Georgia Corridor were developed from existing GDOT information, specifically the 1998 Highway Performance Monitoring System (HPMS) data file. An ArcView shape file containing all HPMS data fields for roadway sections in Georgia was obtained from GDOT. The highway records for all roadway sections in the 45 counties in the Central Georgia Corridor were extracted from this shape file. A correspondence field for the Transearch highway network used in the Central Georgia Corridor and the roadway segments in the HPMS shape file was developed to allow the transfer of HPMS data to the Transearch highway network. This correspondence was developed by overlaying the Transearch and HPMS shape files and identifying the segments that share the same geographic location. This effort was necessary because no common data identifier field existed that could be used to link (join) the two shape files.

Once the HPMS data was linked to the Transearch network, the traffic volume information in HPMS for universe and sample sections was transferred to the Transearch highway network. "Universe" records include all highway segments in Georgia and include basic highway inventory information. Traffic information for universe records includes base-year (1998) AADTs for all vehicles. "Sample" sections are an approximate 20 percent sample of roads for which more complete information is inventoried. This sample is chosen to allow statistically valid analysis to be developed at the statewide level. Traffic information for sample sections includes, in addition to base-year AADT, forecast-year AADT, average and peak-hour percentages of combination trucks, average and peak-hour percentages of single-unit trucks, percentage of daily traffic in the peak hour, and, for two-way roads, percentage of peak-hour traffic in the peak direction.

Combination trucks are trucks consisting of a power unit (a.k.a. cab or tractor) connected to one or more trailers. Single-unit trucks are large trucks on a single frame with two or more axles and six or more tires. No traffic count information exists that provides information based on the contents of the truck or classifies its use as freight or non-freight purposes. While freight can be carried in both single-unit and combination trucks, and combination trucks can be used for non-freight purposes, in the HPC 6 study an assumption is made that, on average, the number of freight trucks on a highway section is approximately equal to the number of combination trucks and that the number of non-freight vehicles (e.g., pickup trucks and local delivery vehicles) is equal to the number of single-unit trucks and all other vehicles. For the long-haul freight trucks that are the focus of this study, combination trucks are the primary means of transportation.

For each sample section, the non-freight AADT is thus defined as being equal to the 1998 Total AADT times (100% – COMBO TRUCK %) as transferred from the HPMS file. For universe sections it is necessary to develop an estimate of combination trucks. For this study, a table of the average percentage of combination trucks by functional classification was developed from the sample section data for the HPC 6 roads and is shown in Table 2.3.

Table 2.3: Default Combination Truck Percentage of AADT

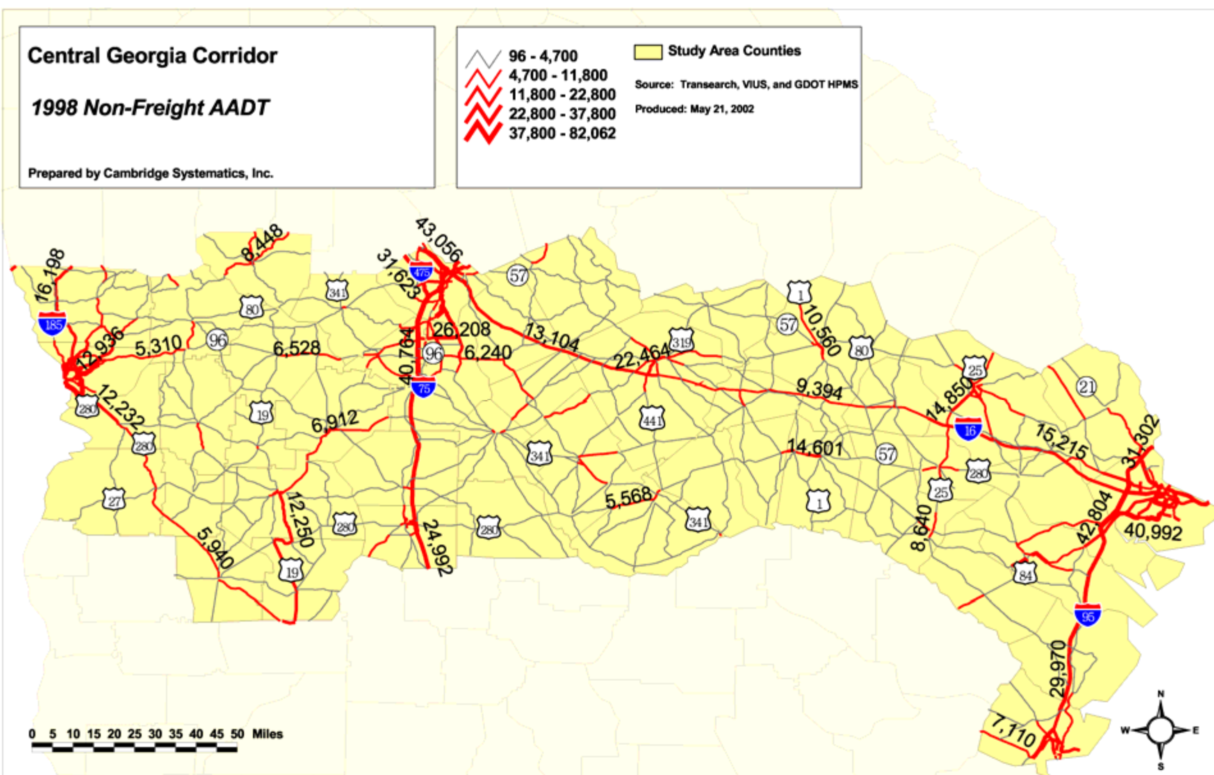
Functional Class	Combination Truck Percent Average
1 – Rural Interstates	21
2 – Rural Other Principal Arterials	12
6 – Rural Minor Arterials	5
7 – Rural Major Collectors	4
11 – Urban Interstates	7
12 – Urban Other Freeways	2
14 – Urban Other Arterials	3
16 – Urban Collectors	2

Source: Cambridge Systematics, Inc. analysis of GDOT HPMS and Transearch data.

These percentages were applied to all of the universe sections based on the functional classification of that section. The non-freight truck AADT for the universe sections on the Transearch highway network was then calculated as equal to the 1998 Total AADT times (100% – COMBO TRUCK %). In this manner, non-freight AADT was calculated directly from 1998 HPMS data for the sample sections and from 1998 AADT and default percentages, based on functional classification, for the universe sections.

The map below shows current non-freight AADT on the highway system in the Corridor. The highest non-freight traffic is on the Interstates including I-95, I-75, and to a lesser degree I-16 and I-185. Other concentrations of non-freight traffic generally occur on highway segments within and around the three metropolitan areas in the Corridor: Savannah, Macon-Warner Robins, and Columbus. Non-freight AADT is also higher near regional activity centers such as Dublin, Vidalia, Americus, and Soperton, for example.

Figure 2.5: HPC 6 Current Non-Freight AADT



Source: Cambridge Systematics, Inc. analysis of GDOT HPMS and Transearch data.

Current Level of Service

In order to assess the current and future Level of Service (LOS) for both freight and non-freight traffic on the highway system, volume-to-capacity (V/C) was calculated using the total traffic (freight and non-freight) on the system. Below, a map of the current V/C for the Corridor shows the extent of roadway segments near or at capacity. A similar map showing future V/C is presented in a following section on Future Level of Service.

The V/C ratio as a performance measure of traffic compares the demand or
on a roadway with the roadway capacity. A V/C ratio of 0.7, for example, indicates that a traffic facility is operating at 70 percent of its capacity. While the calculation of the LOS on a transportation facility can differ depending on its function, with different standards based on delays at intersections and speed on expressway, it is useful in the HPC 6 project to use a single LOS or congestion criteria based on V/C ratios. These V/C ratios generally compare favorably with the establishment of LOS for all transportation facilities. For example, the LOS ranges used by the Arizona Department of Transportation (ADOT) are illustrated in the following table.

Table 2.4: Level of Service based on Volume-to-Capacity Measurement

Volume-to-Capacity Ratio	Level of Service	Congested
0.0 to 0.2	A	No
0.3 to 0.4	B	No
0.5 to 0.7	C	No
0.7 to 0.8	D	Yes
0.8 to 0.95	E	Yes
0.95+	F	Yes

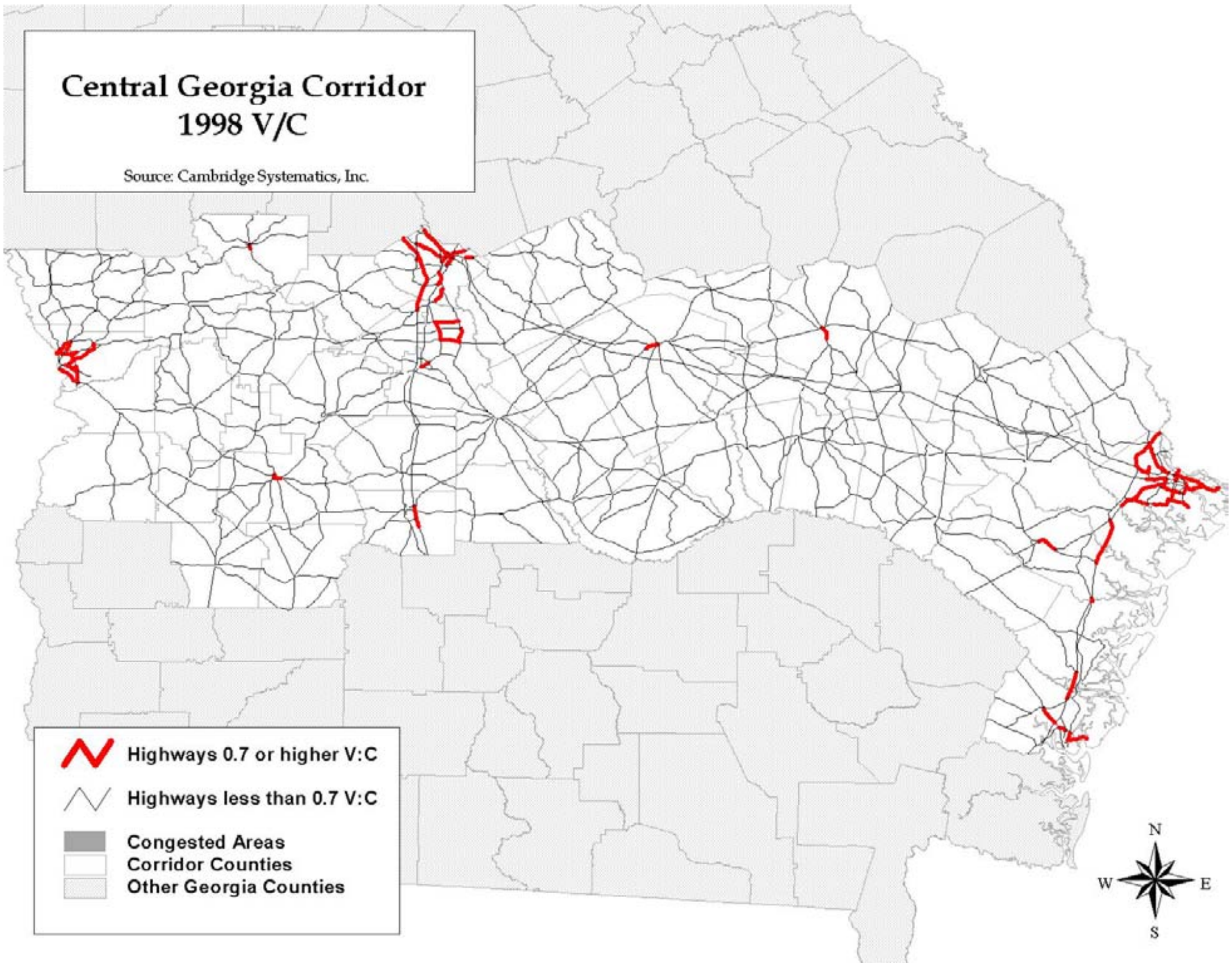
Source: Cambridge Systematics, Inc. and Arizona Department of Transportation.

This is acceptable for the general planning level of analysis being conducted for the Central Georgia Corridor but is not meant to replace detailed traffic engineering analysis of individual sections. The V/C ratio used in this analysis is also a comparison of the daily volumes with the daily capacities as computed from GDOT's HPMS peak hourly capacities and the percentages of volume in the peak hour. Localized congested periods may exist that are not sensitive to this analysis.

The national standard for acceptable congestion is generally recognized as sections with a LOS of D or greater. This would correspond with a V/C ratio of greater than 0.7. Corridors in urban areas may be expected to tolerate greater levels of congestion and an argument for acceptable congested conditions in these areas as being those with V/C ratio greater than 0.85 to 0.9 might be made. In general however, most of the deficient sections identified in the HPC 6 analysis would be congested by either standard.

The following map shows current V/C for the Corridor.

Figure 2.6 A.: Current Volume-to-Capacity for the Corridor



Source: Cambridge Systematics, Inc. analysis of GDOT HPMS and Transearch data.

The current V/C map shows roadway segments approaching or at capacity primarily in and around the three metropolitan areas in the Corridor (Columbus, Macon, and Savannah, left to right). High traffic segments also exist generally on I-95 and on sections of State and U.S. highways throughout the Corridor, especially at or near key junctions such as Americus and Dublin, for example.

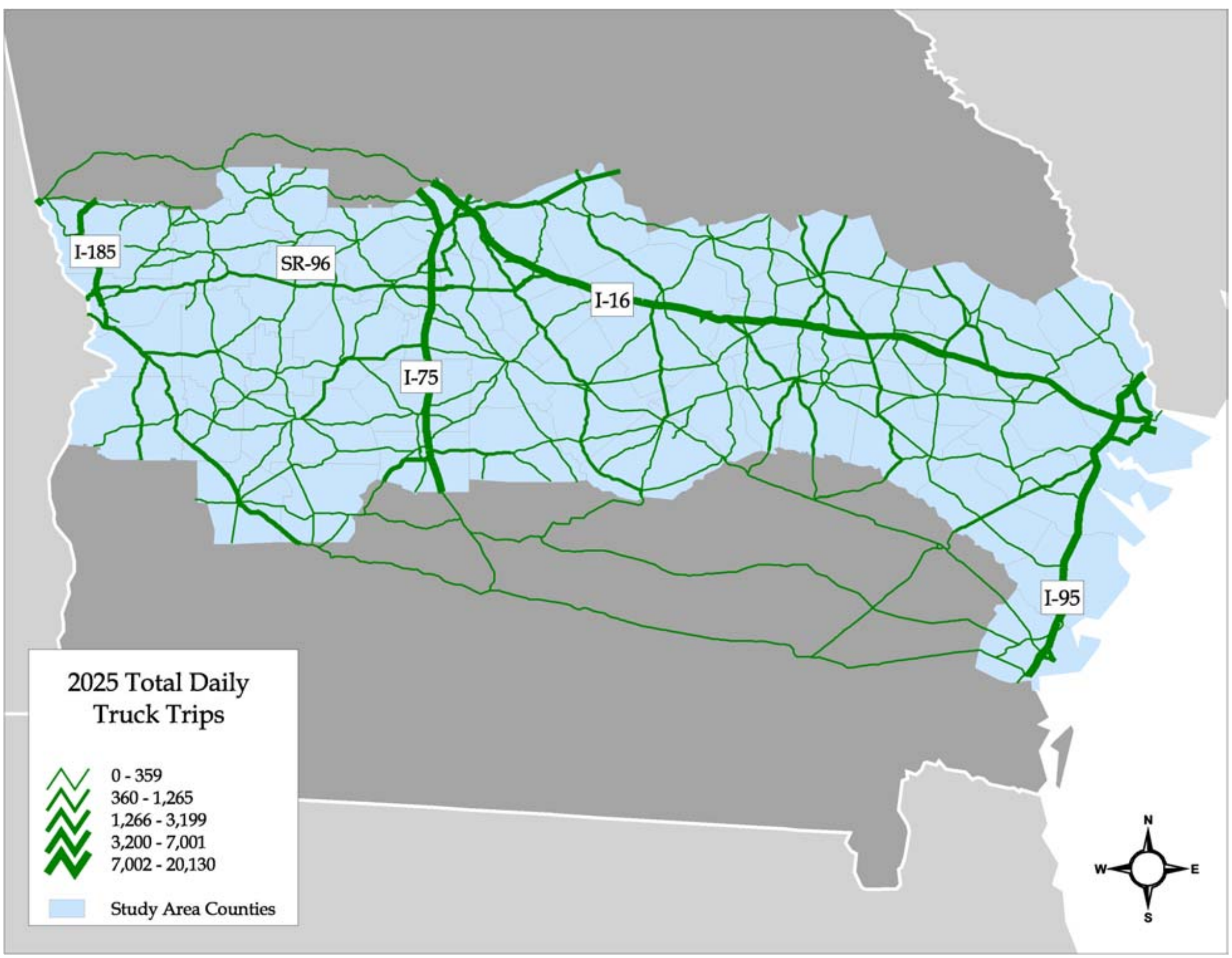
Future Freight Flow

Four sets of growth factors developed through Regional Economic Models, Inc. (REMI) modeling procedures were used to convert the 1998 freight flows into the 2025 freight flows. The growth factor categories correspond with: (1) origin-destination pairs within the 45-county region ("internal-internal"); (2) origins within the region to destinations outside the region ("internal-external"); (3) origins outside the region to destinations within the region ("external-internal"); and (4) origin-destination pairs completely outside the region but that represent overhead traffic ("external-external").

Once growth percentages for internal-internal, internal-external, external-internal, and external-external REMI commodities were calculated for the period 1998 through 2025, these percentiles were then applied to corresponding two-digit STCC commodities in the Transearch commodity flow database. In this manner, all records in that database were grown by the appropriate factors, culminating in the 2025 freight forecast.

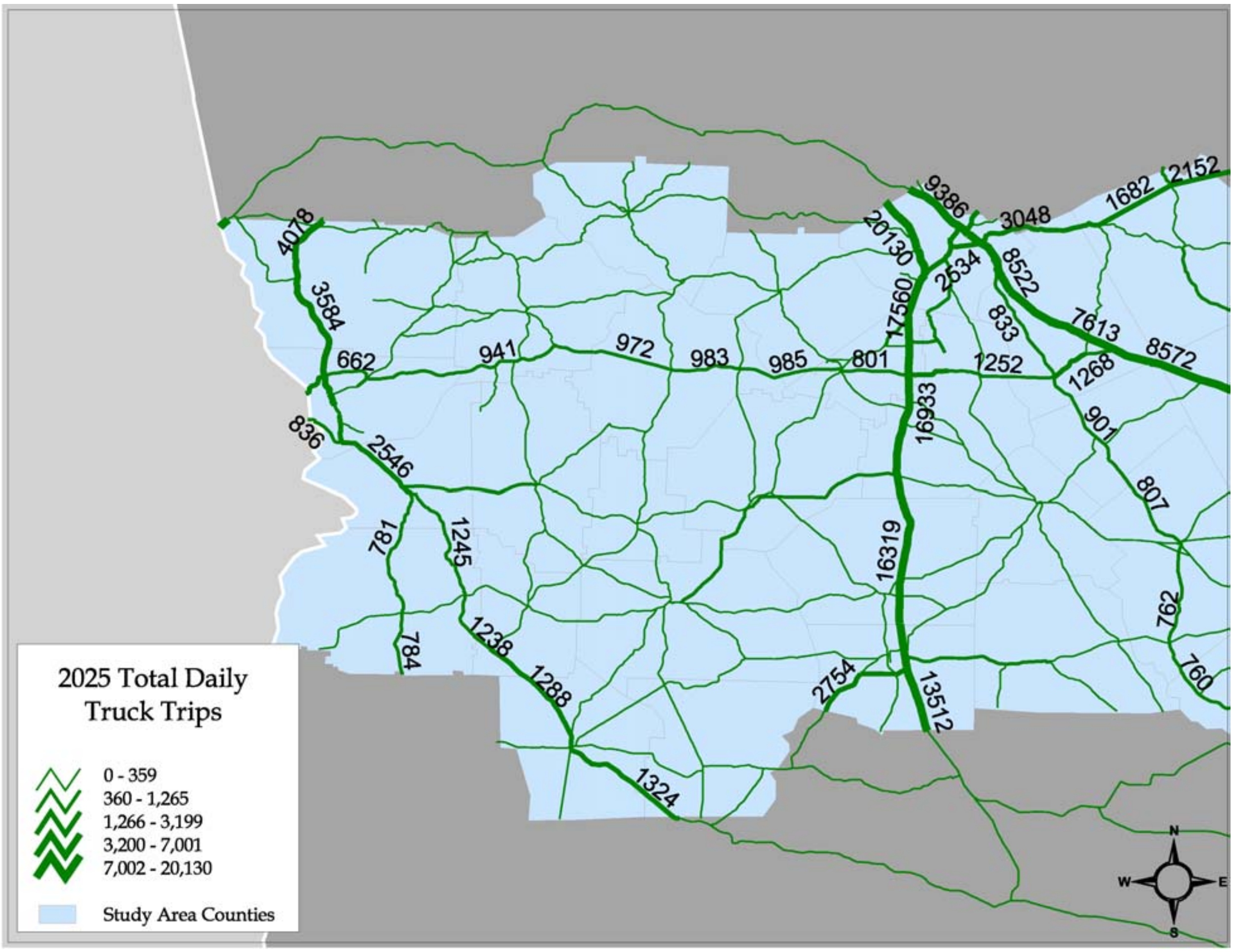
The results were again mapped on the study area network. The freight patterns projected in 2025 are very similar in comparison with the 1998 flows; in other words, the most heavily represented roads in terms of truck trips remain I-75, I-16, and I-95 in 2025. However, the upper bound is nearly twice as many daily trips, at about 20,000. Figures 2.6A-2.9 show projected total daily truck trips for 2025.

Figure 2.6 B.: HPC 6 Future Total Daily Truck Trips: Corridor View



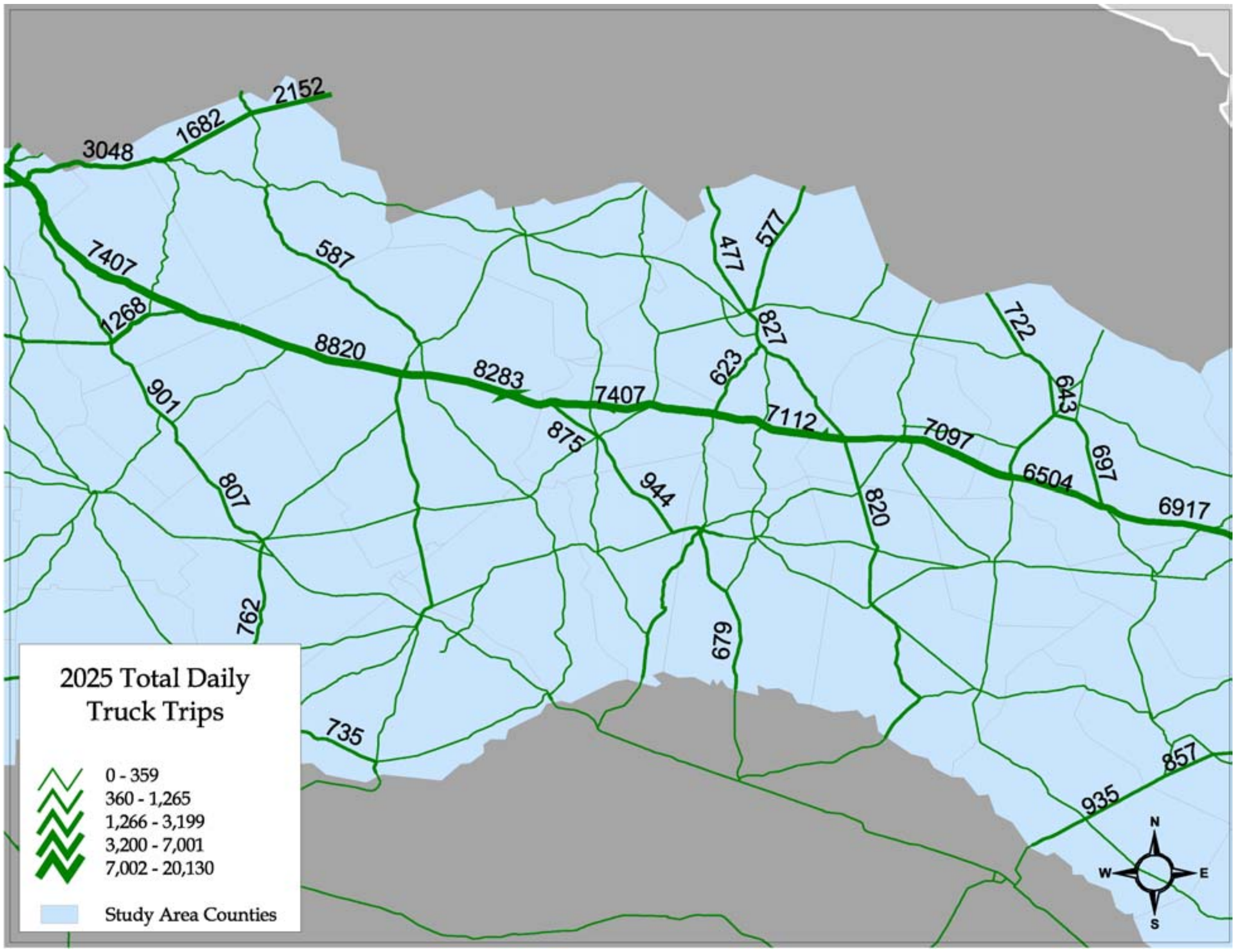
Source: Cambridge Systematics, Inc. analysis of Transearch, VIUS, and REMI data.

Figure 2.7: HPC 6 Future Total Daily Truck Trips: West View



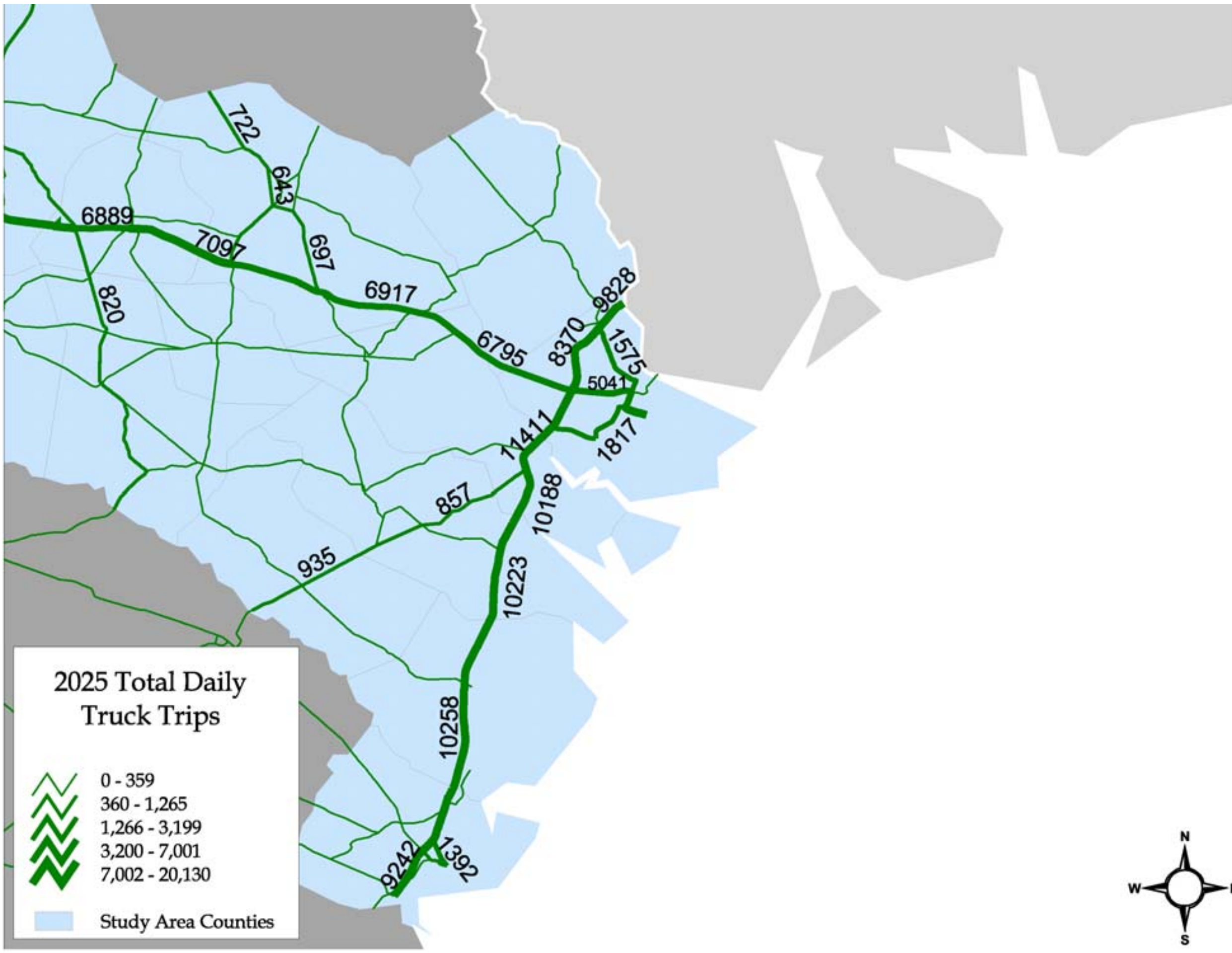
Source: Cambridge Systematics, Inc. analysis of Transearch, VIUS, and REMI data.

Figure 2.8: HPC 6 Future Total Daily Truck Trips: Central View



Source: Cambridge Systematics, Inc. analysis of Transearch, VIUS, and REMI data.

Figure 2.9: HPC 6 Future Total Daily Truck Trips: East View



Source: Cambridge Systematics, Inc. analysis of Transearch, VIUS, and REMI data.

From 1998 to 2025, the growth in tonnage of all commodities moved by truck is expected to average about 2.2 percent annually, from approximately 214 million to 340 million annual truck tons. This growth rate encompasses all truck moves on the Corridor, including internal moves and through moves. The growth rates for particular two-digit commodity classes, as shown in Table 2.5, may be higher or lower than the overall average growth rate.

Table 2.5: Growth in Inbound, Outbound, Internal, and Through Truck Tonnage (1998- 2025)

STCC 2 Commodity	1998 Annual Tonnage	2025 Annual Tonnage	Absolute Growth 1998-2025	Annual % Growth
50 SECONDARY TRAFFIC	54,272,368	102,381,636	48,109,268	3.28%
24 LUMBER OR WOOD PRODUCTS	32,424,007	41,216,617	8,792,611	1.00%
28 CHEMICALS OR ALLIED PRODUCTS	24,014,152	39,038,705	15,024,553	2.32%
20 FOOD OR KINDRED PRODUCTS	25,599,336	31,509,423	5,910,087	0.86%
32 CLAY, CONCRETE,GLASS OR STONE	22,803,853	31,298,603	8,494,749	1.38%
26 PULP, PAPER OR ALLIED PRODUCTS	11,789,661	17,919,234	6,129,573	1.93%
33 PRIMARY METAL PRODUCTS	5,643,412	11,711,534	6,068,122	3.98%
29 PETROLEUM OR COAL PRODUCTS	8,762,864	11,354,470	2,591,606	1.10%
1 FARM PRODUCTS	6,297,830	9,119,983	2,822,153	1.66%
37 TRANSPORTATION EQUIPMENT	4,594,714	8,534,921	3,940,207	3.18%
35 MACHINERY	1,739,643	7,619,932	5,880,290	12.52%
30 RUBBER OR MISC PLASTICS	2,831,464	5,804,084	2,972,620	3.89%
34 FABRICATED METAL PRODUCTS	3,102,568	5,415,708	2,313,140	2.76%
36 ELECTRICAL EQUIPMENT	1,723,702	5,380,697	3,656,995	7.86%
22 TEXTILE MILL PRODUCTS	3,326,224	4,257,646	931,423	1.04%
25 FURNITURE OR FIXTURES	993,515	1,844,445	850,930	3.17%
27 PRINTED MATTER	1,097,727	1,537,808	440,082	1.48%
39 MISC MANUFACTURING PRODUCTS	686,387	1,006,711	320,325	1.73%
23 APPAREL OR RELATED PRODUCTS	1,081,574	968,336	-113,238	-0.39%
11 COAL	417,028	586,443	169,415	1.50%
38 INSTRUM, PHOTO EQUIP, OPTICAL EQ	244,287	541,315	297,028	4.50%
21 TOBACCO PRODUCTS	370,141	484,032	113,891	1.14%
31 LEATHER OR LEATHER PRODUCTS	152,929	140,631	-12,298	-0.30%
Total Truck Tonnage:	**213,969,383**	**339,672,915**	**125,703,532**	**2.18%**

Source: Cambridge Systematics, Inc. analysis of Transearch, VIUS, and REMI data.

Future Non-Freight AADT

The forecasts of non-freight AADTs for the Central Georgia Corridor are produced by a similar estimation methodology that is being developed for the statewide transportation plan update. Consistent with GDOT current practices, the statewide plan procedure modifies traffic count data using changes in demographic forecasts. For the statewide plan, a multiple regression-based model was developed that relates changes in population, employment, and other socioeconomic factors to changes in traffic. In the statewide plan, a growth rate of 1.9 percent per year was established based on the statewide population and employment growth. The statewide plan also examined the growth forecast by Georgia's non-Atlanta Metropolitan Planning Organization (MPO) travel demand models. It was determined that, on average, these models forecast a growth in Vehicle Miles of Travel (VMT) of 1.9 percent per year.

For the Central Georgia Corridor, regressions of historical VMT on rural and urban roadways were prepared against rural and urban population and employment. These regression equations were then applied to the study area population and employment projections. Using these equations a growth rate of 1.9 percent per year was found for both urban and rural sections.

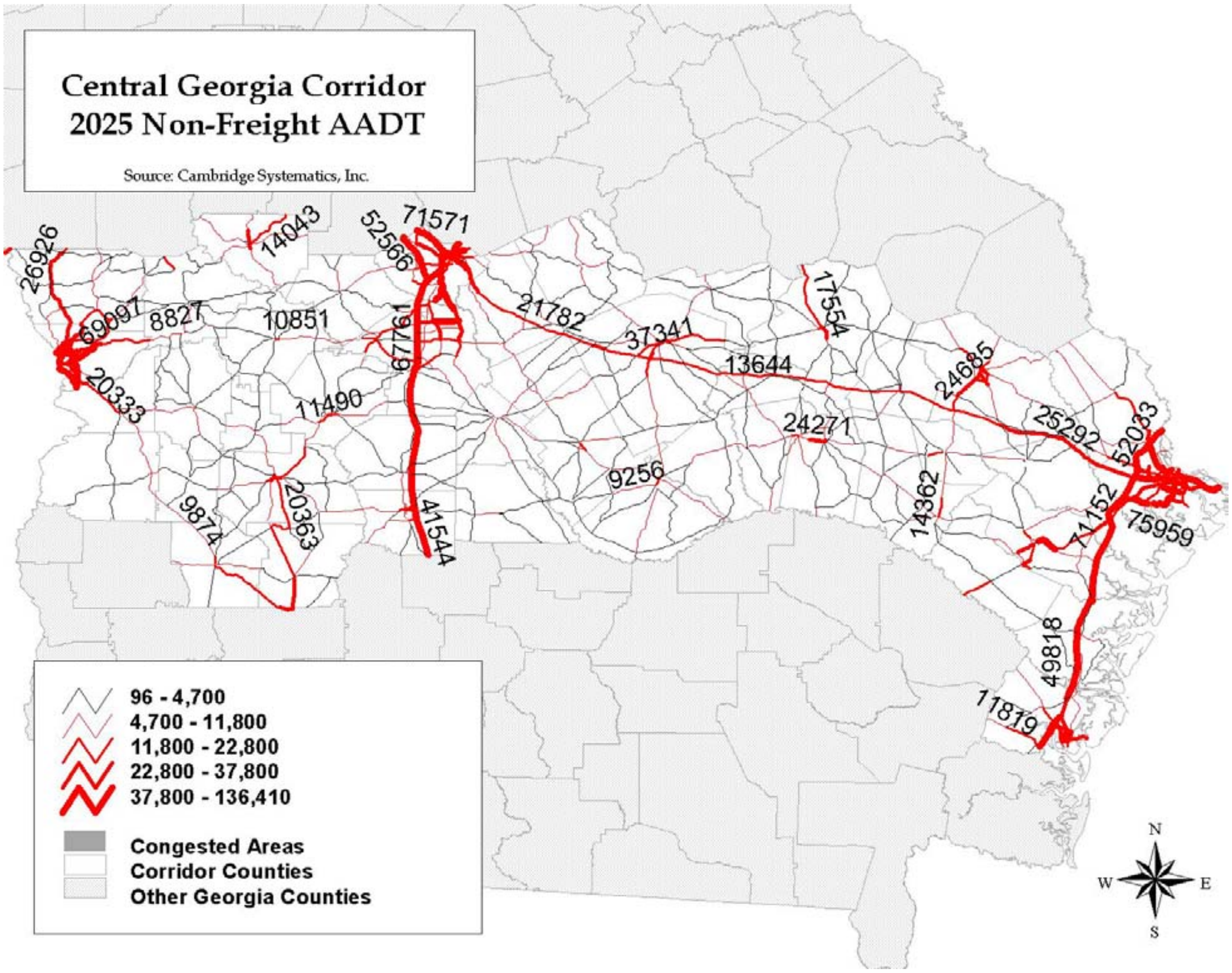
The GDOT 1998 HPMS submittal also contains forecasts of AADT for sample sections in the year 2017. These forecasts of AADT were examined and it was determined that the HPMS forecasts are consistent with a growth rate of 1.86 percent per year.

Travel demand models exist for the five MPOs in the Central Georgia Corridor: Brunswick Area Transportation Study (BATS); Columbus-Muscogee Co. Consolidated Government; Chatham County-Savannah Metropolitan Planning Commission; Macon Metropolitan Planning Organization, and City of Warner Robins Community Development Department. The outputs of these travel demand models were provided by GDOT. The total growth in VMT forecast by these five models is consistent with a growth of 1.91 percent per year.

Given the consistency of growth forecasts produced by these various methods, the forecasts of 2025 non-freight AADT on the sections of the HPC 6 highway network were produced by growing the 1998 non-freight AADT at a rate of 1.9 percent per year, or 66.2 percent from 1998 to 2025.

Figure 2.10 shows future non-freight AADT based on a 2025 forecast for HPMS data on the Corridor highway network. The future non-freight AADT shows a similar pattern of higher AADT segments on the Interstate highways, in and around the metropolitan areas, and at regional activity centers. The future non-freight AADT map generally shows traffic increases on segments that currently carry high levels of non-freight traffic.

Figure 2.10: HPC 6 Future Non-Freight AADT

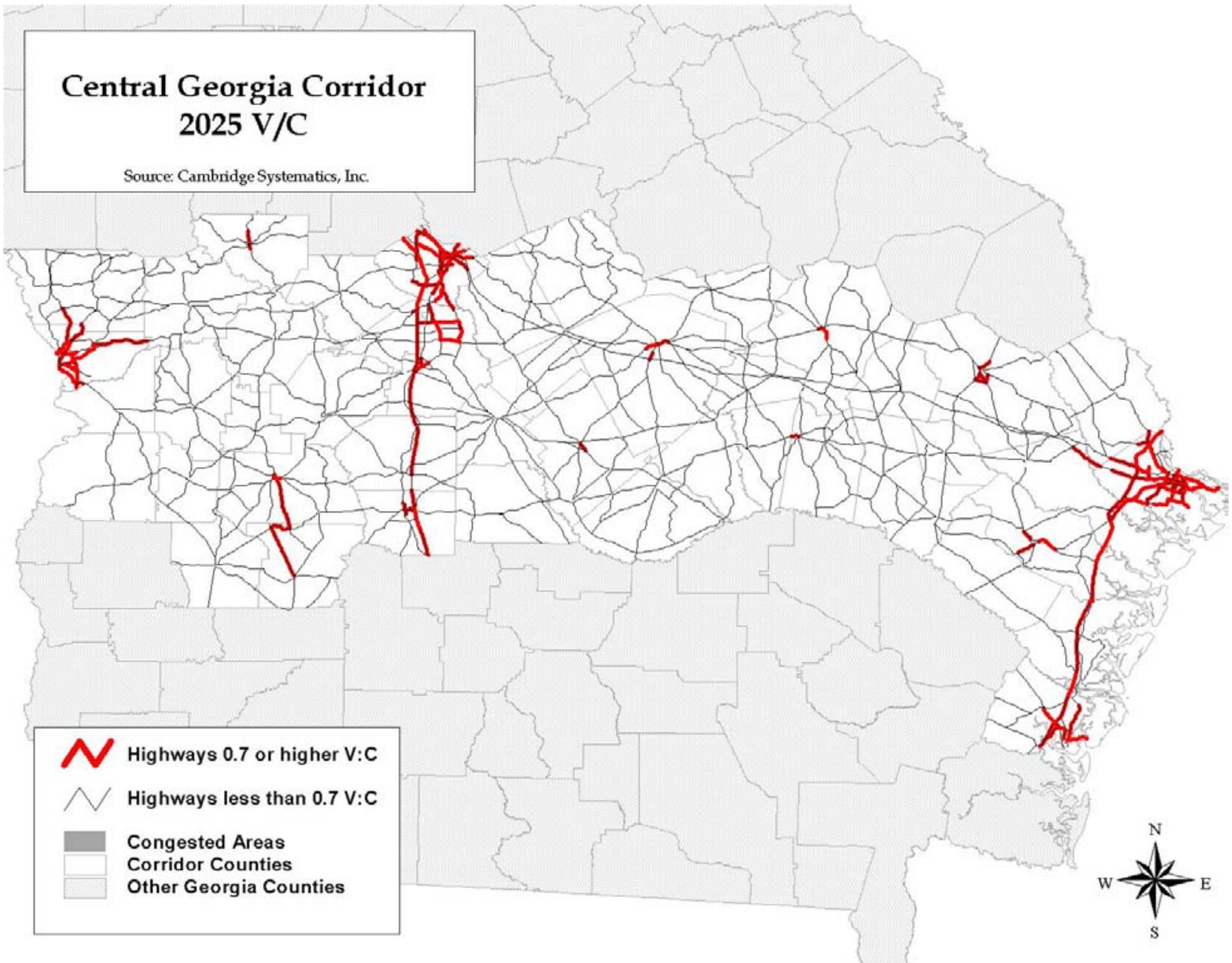


Source: Cambridge Systematics, Inc. analysis of GDOT HPMS, Transearch, REMI, and MPO data.

Future Level of Service

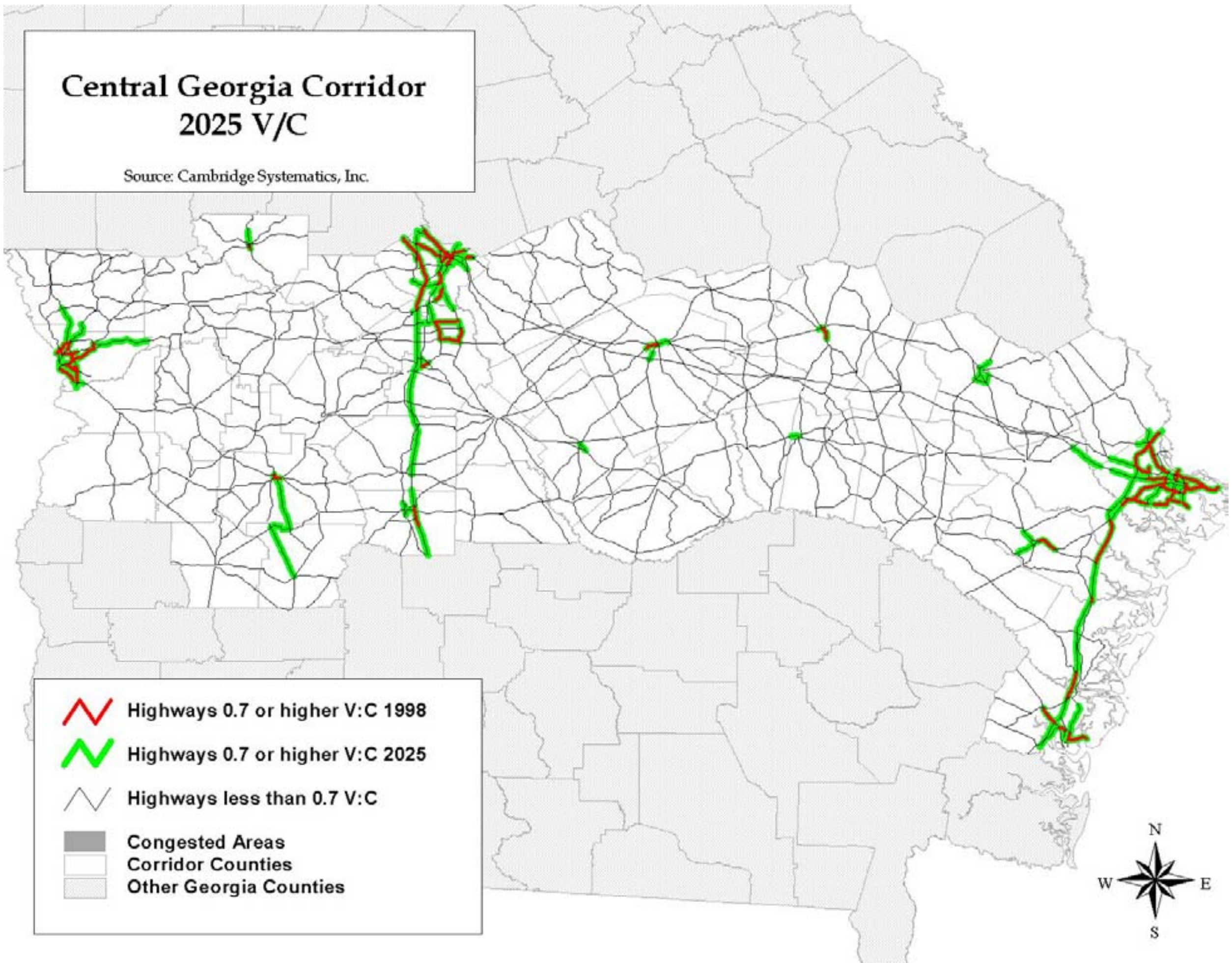
Future LOS is expressed below in the future V/C map of the Corridor. Like the current volume-to-capacity map, the future map shows a concentration of roadway segments approaching or at capacity around the metropolitan areas in the Corridor. However, the future map shows 0.7 or higher V/C segments on all segments of the primary north-south Interstates, I-75 and I-95. The map also shows additional segments of 0.7 V/C or higher on State and U.S. highways near key junctions in the Corridor (Statesboro and Thomaston, for example) and on highways connecting regional activity centers (SR-377 and U.S. 19 between Americus and Albany, for example).

Figure 2.11: Future Volume-to-Capacity for the Corridor



Source: Cambridge Systematics, Inc. analysis of GDOT HPMS, Transearch, REMI, and MPO data.

Figure 2.12: Current versus Future V/C



Source: Cambridge Systematics, Inc. analysis of GDOT HPMS, Transearch, REMI, and MPO data.

The final map shows current and future volume-to-capacity to further illustrate changes in LOS in the Corridor. Again, highway segments of I-95 and I-75 and around key junctions and activity centers show the greatest change in level of service.

Rail Freight Flows

Current Freight Flows by Rail

The Phase 1 report for this study determined that, for domestic tonnage moving inbound and outbound from the 45 counties within the study area, 76 percent was moved by truck, 22 percent by rail, one percent by water, and a negligible amount by air (these figures do not include pipeline). Rail traffic in the study area is accommodated by four systems: the Norfolk Southern, the CSX, the Georgia Central Railroad, and the Heart of Georgia (which is owned by

GDOT). Rail handles two very different submarkets – intermodal and bulk – which need to be addressed separately.

Intermodal Rail

The intermodal market (double-stack, container-on-flatcar, trailer-on-flatcar, and piggyback trailer) accounts for over 1,360,000 tons into and out of the study area counties (including county-to-county moves). This market is focused in Chatham County. The intermodal rail terminals in Savannah handle over 1,345,000 tons of intermodal rail freight, which represents 99 percent of the total for the entire study area. This reflects three factors:

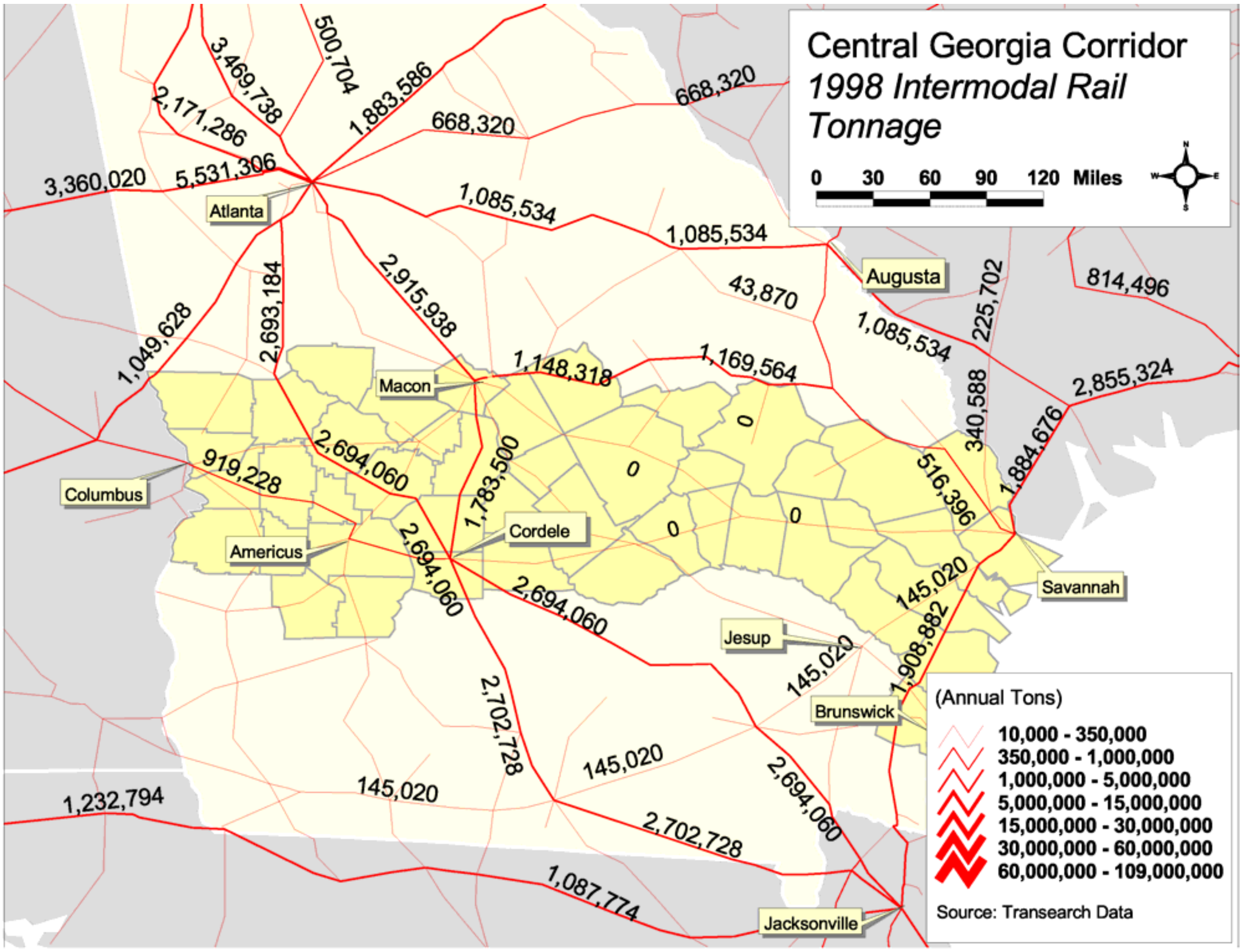
- The tremendous importance of the Port of Savannah as a generator of landside intermodal rail traffic.

- The fact that intermodal rail market tends to be long haul in nature, so that trips to/from Savannah will begin or end outside the study area. Intermodal rail is increasingly competitive with trucking at longer distances, starting at around 250 to 400 miles.

- Other than Savannah, the study area's intermodal demand and intermodal facilities are more limited. Intermodal terminals require expensive equipment and storage yards, and need a "critical mass" of traffic to support the investment in their development and operation.

Major origins and destinations for Savannah's intermodal rail traffic include New Orleans, Memphis, Atlanta, Charleston, Jacksonville, Miami, Philadelphia, Chicago, and Cincinnati. Intermodal traffic into and out of Savannah is clearly in the north-south direction; intermodal traffic in the east-west direction through the study area, or between Savannah and other study area counties, is extremely low (see Figure 2.13 below). A factor relating to this may include the presence of a low bridge in Americus through which intermodal freight cannot pass
The study area also accommodates "overhead" intermodal rail traffic (through traffic that does not originate or terminate in the study area). The overhead moves are also predominantly in the north-south direction – through Savannah along the eastern seaboard, and to/from Jacksonville through Cordele (see Figure 2.13 below). Except for intermodal traffic originating or terminating in Savannah, all the traffic shown on Figure 2.13 is through traffic.

Figure 2.13: Current Rail Intermodal Tonnage Flows in the Study Area



Bulk Rail

By far, the largest share of rail tonnage moved into and out of the study area is in non-containerized form – dry bulk (kaolin, stone, wood chips, etc.) in hopper cars, liquid bulk (chemicals, fertilizers, etc.) in tank cars, and other commodities on flatcars and in boxcars. According to the Transearch database, this market accounts for 25,825,193 tons into and out of the study area. Compared to intermodal rail (with 1,360,256 tons), bulk commodities represent a much larger market for rail. Table 2.6 below summarizes the commodities using rail to move into and out of study area counties, and the predominance of heavy bulk commodities – concrete/clay/glass/stone, non-metallic minerals (principally kaolin), lumber and wood, pulp and paper, and chemicals – is clearly evident.

Table 2.6: Rail's Leading Commodities versus Other Modes

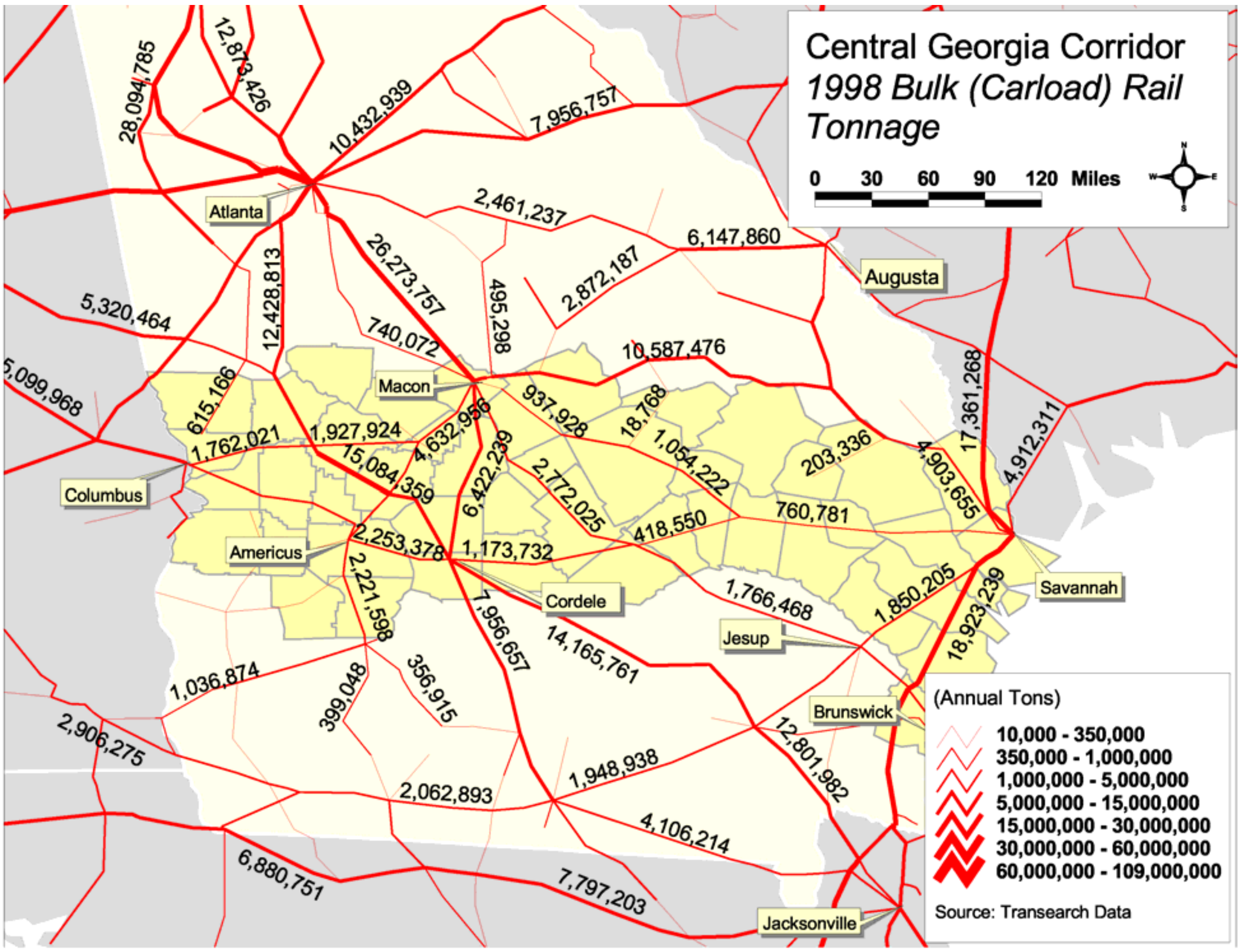
STCC 2	Commodity Type	Rail Tons	Truck Tons	Air Tons	Water Tons	Total
32	CLAY, CONC, GLASS OR STONE	7,284,514	15,577,078	5	-	22,861,598
14	NON-METALLIC MINERALS	4,597,107	-	-	974	4,598,081
24	LUMBER OR WOOD PRODUCTS	3,400,724	13,846,842	-	-	17,247,566
26	PULP, PAPER OR ALLIED PROD	2,988,176	3,068,959	5	-	6,057,140
28	CHEMICALS OR ALLIED PROD	2,511,306	6,397,339	453	194,003	9,103,101
11	COAL	1,085,369	311,020	-	-	1,396,389
10	METALLIC ORES	952,705	-	-	-	952,705
46	MISC MIXED SHIPMENTS	935,670	-	258	-	935,928
20	FOOD OR KINDRED PRODUCTS	886,435	9,127,159	-	-	10,013,594
40	WASTE OR SCRAP MATERIALS	736,576	-	-	482,921	1,219,497
1	FARM PRODUCTS	605,642	624,236	-	-	1,229,878
29	PETROLEUM OR COAL PRODUCTS	578,355	5,226,925	-	1,052,822	6,858,102
	ALL OTHER	622,869	39,278,954	2,664	9,278	39,913,765
	TOTAL	27,185,449	93,458,513	3,385	1,739,997	122,387,344

Source: Cambridge Systematics, Inc. analysis of Transearch data.

Aside from commodity mix and tonnage, the other important difference between intermodal and bulk rail is the nature of the origin-destination patterns. While intermodal is heavily focused on long-haul moves into and out of Savannah, bulk rail serves many study area counties and is used for shorter distance moves as well as longer distance moves. While almost none of the intermodal tonnage moving into or out of study area counties has an origin or destination within the study area, about 17% of the bulk tonnage moving into or out of study area counties has an origin or destination elsewhere in the study area, and over half (51%) has an origin or destination within the state of Georgia.

Bulk rail therefore plays a critical role in efficiently distributing freight within the study area and the state of Georgia. Much of the bulk rail tonnage is moving to and from industrial users and port facilities at Savannah and Brunswick. Taken together, Chatham County and Glynn County receive more than half of the study area's inbound bulk rail tonnage; of the 10 leading sources for this tonnage, eight are within the state of Georgia (Washington, Warren, Wilkinson, Jefferson, Monroe, Jones, Bibb, and Richmond counties). Chatham, Wilkinson, Bibb, and Talbot counties collectively ship more than half of study area's outbound bulk rail tonnage; of the 10 leading destinations for this tonnage, eight are within the state of Georgia (Chatham, Wayne, Richmond, Camden, Dougherty, Fulton, Gwinnett, and Glynn counties). Major flows (including overhead traffic) are shown in Figure 2.14 below.

Figure 2.14: Current Rail Carload (Bulk) Tonnage Flows in the Study Area



Future Freight Flows by Rail

Rail freight forecasts were generated using a methodology similar to the highway freight forecasts. Three sets of growth factors developed through Regional Economic Models, Inc. (REMI) modeling procedures were used to convert the 1998 freight flows into the 2025 freight flows. The growth factor categories correspond with: (1) origin-destination pairs within the 45-county region ("internal-internal"); (2) origins within the region to destinations outside the region ("internal-external"); and (3) origins outside the region to destinations within the region ("external-internal"). Once growth percentages for internal-internal, internal-external and external-internal REMI commodities were calculated for the period 1998 through 2025, these percentiles were then applied to corresponding two-digit STCC commodities in the Transearch commodity flow database, as summarized in Table 2.7 below.

Table 2.7: Growth in Inbound, Outbound, and Internal Rail Tonnage (1998-2025), REMI Forecast

STCC 2 Commodity	1998 Annual Rail Tonnage	2025 Annual Rail Tonnage	Absolute Growth 1998-2025	Annual % Growth
32 CLAY, CONCRETE,GLASS OR STONE	7,296,620	9,626,636	2,330,016	1.18%
14 NONMETALLIC MINERALS	4,597,107	6,344,702	1,747,595	1.41%
26 PULP, PAPER OR ALLIED PRODUCTS	3,066,950	4,471,571	1,404,621	1.70%
24 LUMBER OR WOOD PRODUCTS	3,541,926	4,442,514	900,588	0.94%
28 CHEMICALS OR ALLIED PRODUCTS	2,546,571	3,875,359	1,328,788	1.93%
10 METALLIC ORES	952,705	1,997,659	1,044,954	4.06%
11 COAL	1,085,369	1,514,198	428,829	1.46%
46 MISC MIXED SHIPMENTS	936,786	1,464,025	527,239	2.08%
40 WASTE OR SCRAP MATERIALS	736,576	1,143,059	406,483	2.04%
20 FOOD OR KINDRED PRODUCTS	896,511	1,133,108	236,597	0.98%
1 FARM PRODUCTS	605,642	835,955	230,313	1.41%
29 PETROLEUM OR COAL PRODUCTS	578,355	746,375	168,019	1.08%
35 MACHINERY	97,126	483,752	386,626	14.74%
37 TRANSPORTATION EQUIPMENT	135,736	254,547	118,812	3.24%
42 SHIPPING CONTAINERS	162,098	251,351	89,253	2.04%
33 PRIMARY METAL PRODUCTS	91,786	184,294	92,509	3.73%
41 MISC FREIGHT SHIPMENTS	82,645	130,291	47,646	2.14%
19 ORDNANCE OR ACCESSORIES	24,113	32,464	8,351	1.28%
45 SHIPPER ASSOCIATION TRAFFIC	17,866	28,164	10,298	2.13%
47 SMALL PACKAGED FREIGHT SHIPMENTS	7,982	12,966	4,984	2.31%
30 RUBBER OR MISC PLASTICS	2,210	4,757	2,547	4.27%
36 ELECTRICAL EQUIPMENT	508	1,044	536	3.91%
23 APPAREL OR RELATED PRODUCTS	800	992	192	0.89%
Total Rail Tonnage:	**27,463,987**	**38,979,783**	**11,515,796**	**1.55%**

The resulting REMI compound annual growth rates (approximately 2.0% for intermodal flows, approximately 1.5% for non-intermodal flows) were applied to the 1998 tonnages to generate a set of forecast 2025 flow rates. However, this methodology did not account for different growth rates associated with external zone-to-external zone rail traffic, which represents most of the rail movement through the study area, so the team obtained the year 2020 USDOT Freight Analysis Framework Rail Flows Forecast (a joint product of Reebie Associates and DRI/WEFA), which does include detailed external-to-external forecasts. The 2020 forecast flows were then factored into the study timeframe of 2025.

Each forecast has unique strengths and applications. The REMI-based forecast is fairly conservative, and provides good commodity-level detail for all moves except external to external, and it represents the "low" forecast case. The DRI/WEFA-based forecast is more aggressive in its growth rates within the study area and provides better treatment of <u>through</u> traffic, and it represents our "high" forecast case.

Figure 2.15 A.: Future Rail Intermodal Tonnage Flows in the Study Area, Low Forecast

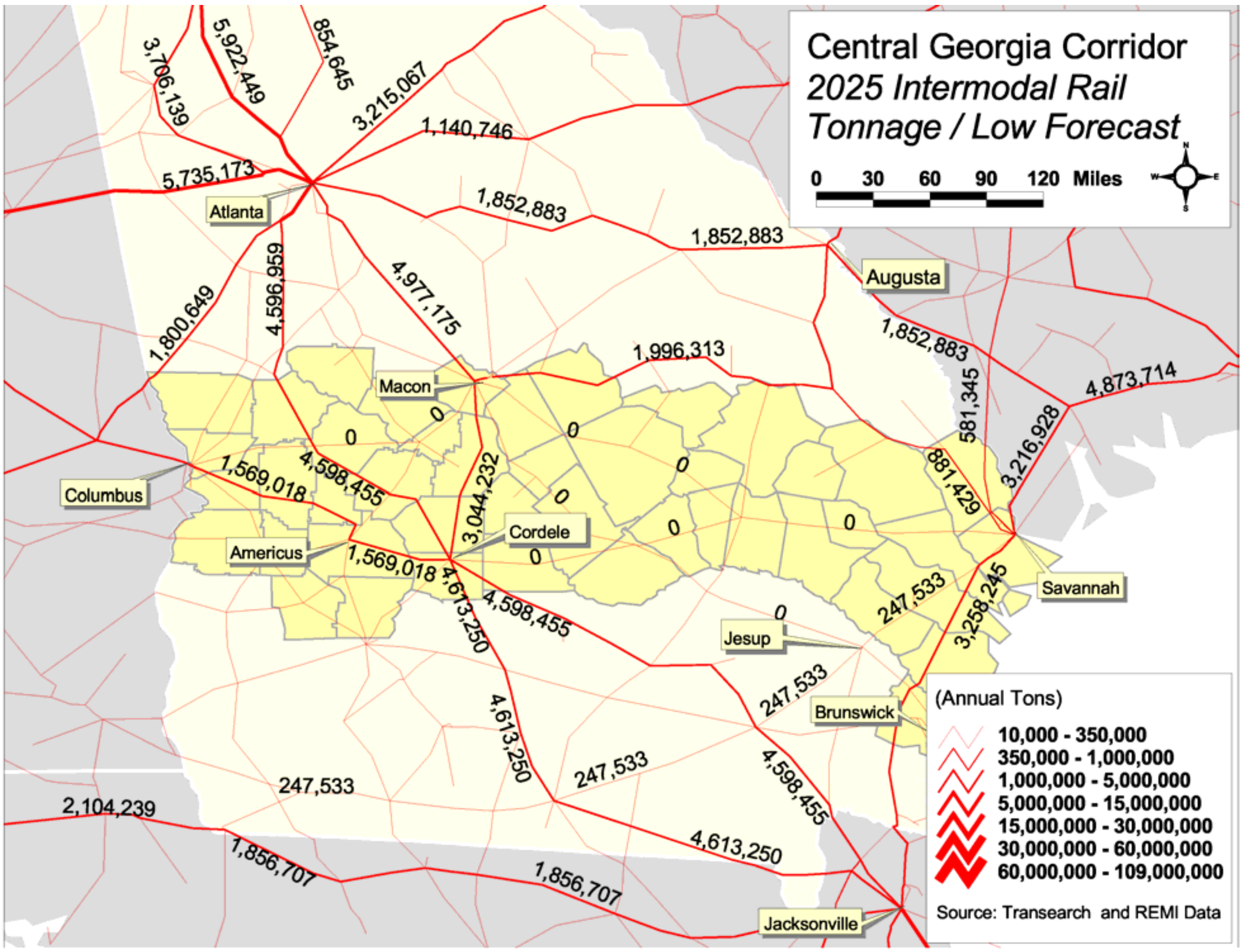
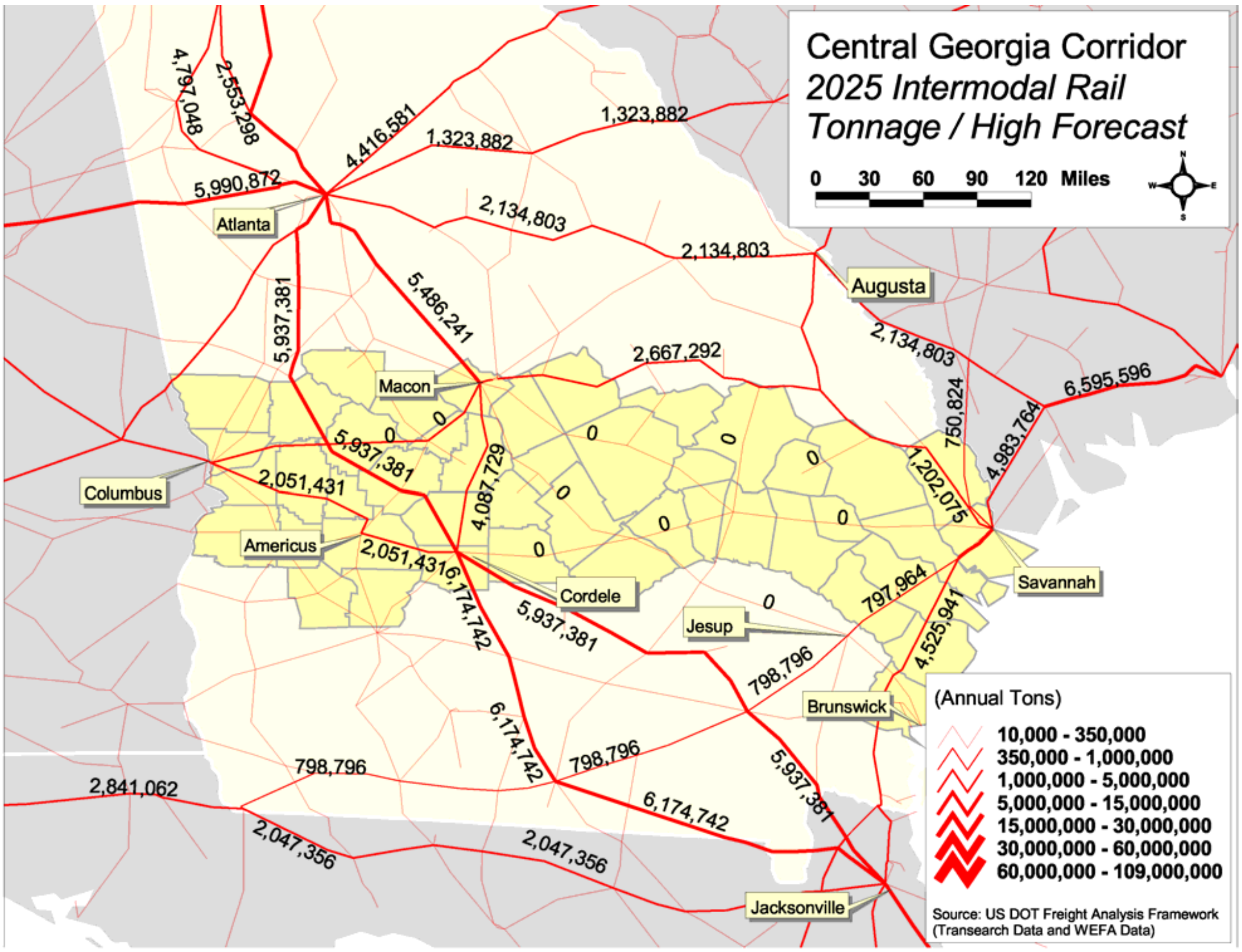


Figure 2.15 B: Future Rail Intermodal Tonnage Flows in the Study Area, High Forecast



Day Wilburn Associates, Inc.

Figure 2.16 A: Future Study Area Rail Carload (Bulk) Tonnage Flows, Low Forecast

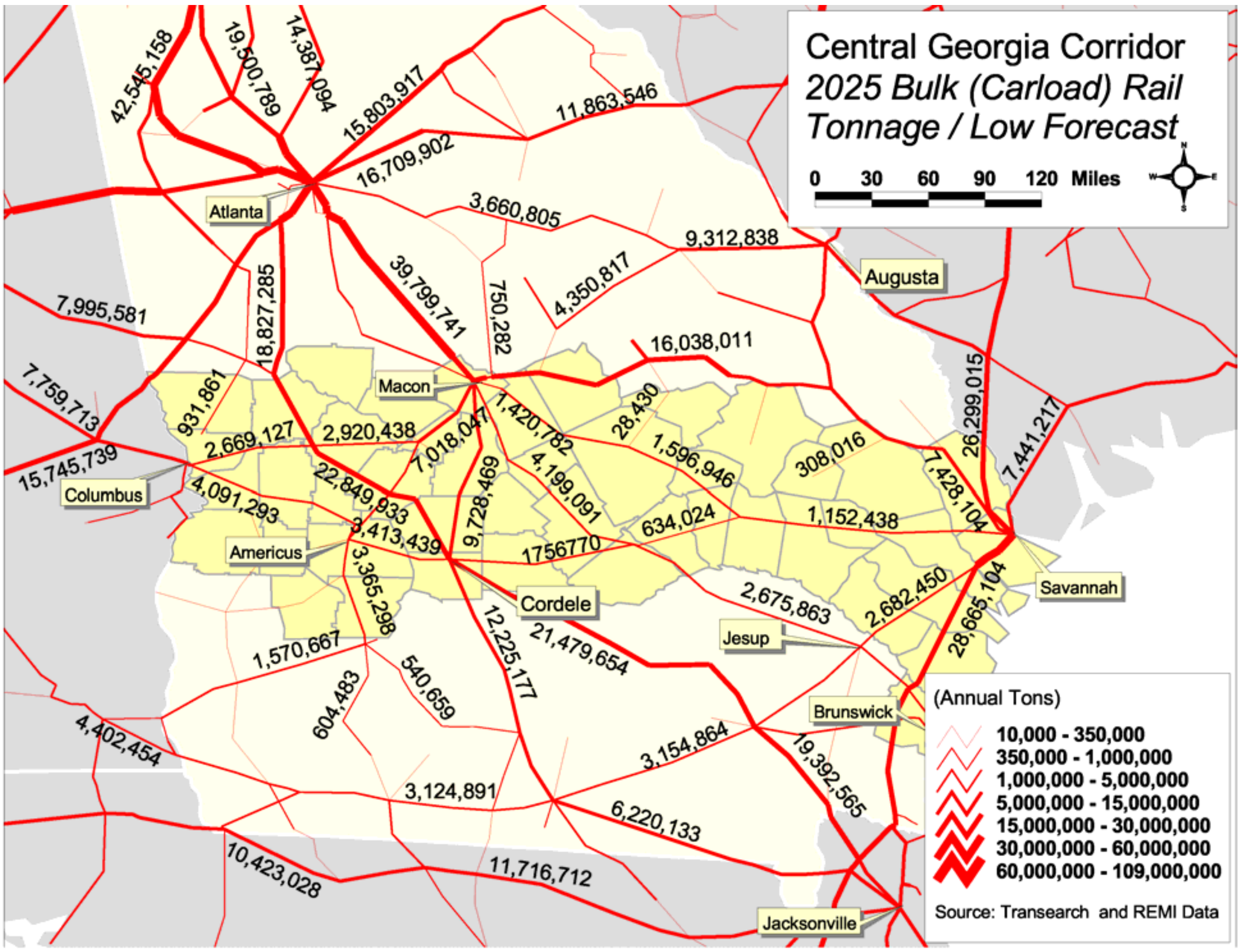
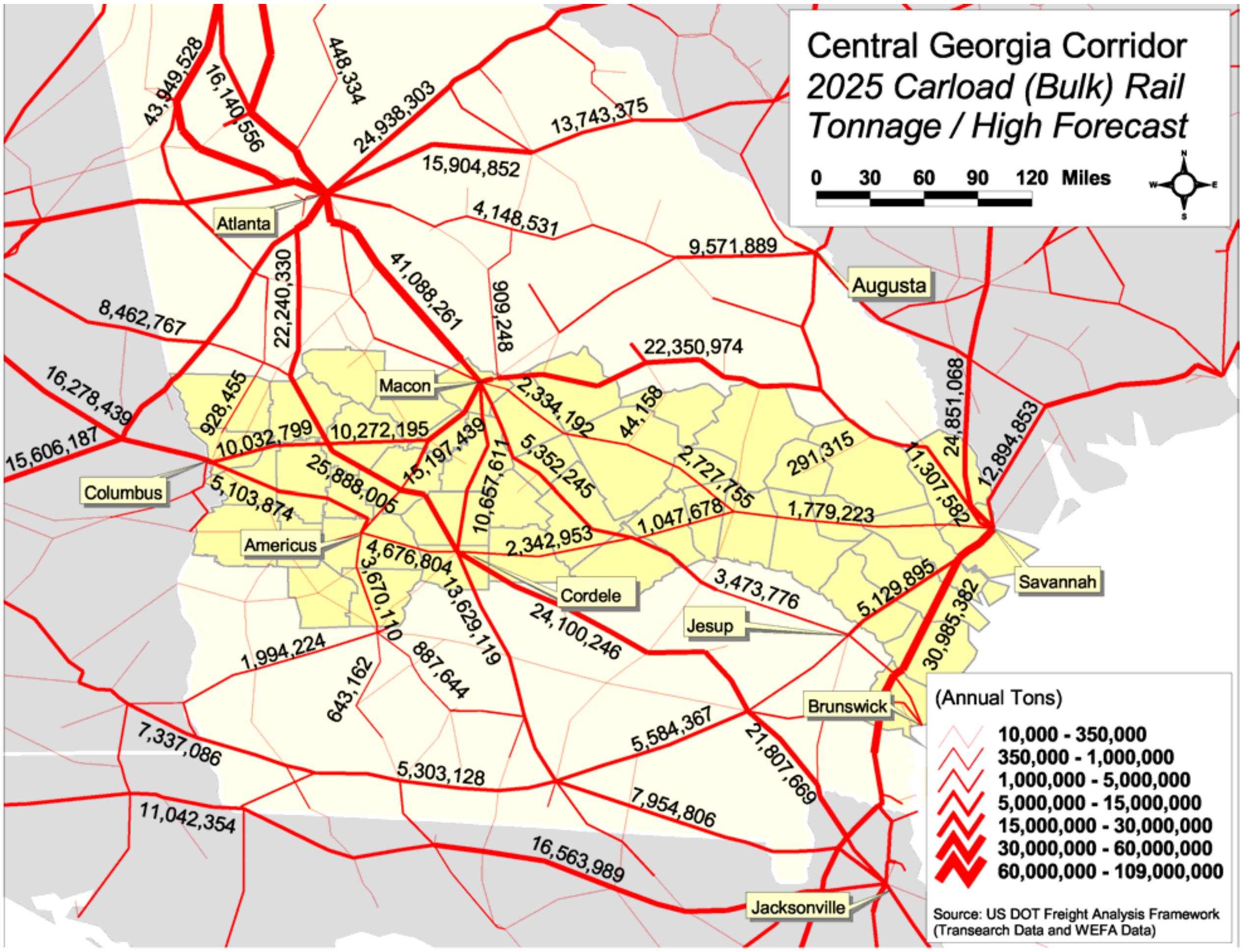


Figure 2.16 B: Future Rail Carload (Bulk) Tonnage Flows in the Study Area, High Forecast



These forecast flows are based on underlying economic assumptions, and may not fully reflect the effects of specific railroad services, operating practices, or business/marketing strategies. Failure to address rail system deficiencies or provide services could mean that the levels of forecast demand cannot be met. Rail system deficiencies have been identified in Chapter 5, and include:

- At-grade crossings of rail lines in the Savannah area. The major example is Central Junction where Norfolk Southern crosses the double track CSX north-south mainline. A second example is Alabama Junction about a mile south of Central Junction where the Georgia Central crosses the same CSX main line. These crossings restrict access to the Port of Savannah from the west, though Norfolk Southern has an alternate route through Port Wentworth that is grade separated from CSX.
- At-grade rail/highway crossings in Savannah, particularly adjacent to the Georgia Ports Authority's Garden City terminal. NS and CSX trains switching this facility block several major streets during their operations.
- Access to the Garden City Terminal by Georgia Central. The Georgia Central has no direct connection to the Garden City Terminal, but instead must use CSX tracks to reach the port. This is presently not a significant hindrance to Georgia Central operations, but development of an inland port near Cordele will almost certainly require an independent connection.

These deficiencies, along with suggested remedies and order of magnitude costs, were addressed in detail in the Chatham County Intermodal Freight Study, 1998, by Georgia DOT.

Conversely, provision of additional rail improvements or services could mean that additional demand beyond the forecast levels can be attracted. In the case of the study area, the potential effects of the Port of Savannah and the state's railroads must be considered.

Port-Related Effects on Forecast Rail Volumes

Intermodal rail capacity in Savannah has recently been significantly upgraded with the opening of the Mason Intermodal Container Transfer Facility (ICTF) at the Port of Savannah. At 150 acres, the Mason ICTF is the largest on-dock intermodal rail terminal on the Atlantic Coast. The ICTF allows for expedited overnight service to Atlanta, and for three-day service to other major U.S. rail hubs (Chicago, Detroit, St. Louis, Kansas City, Memphis, Louisville, Dallas, Houston, and New Orleans). At the same time, container traffic through the Georgia Ports Authority complex in Garden City is expected to grow by approximately 350 percent through the year 2025, according to the Georgia Statewide Transportation Plan Update, and will generate greater demand for intermodal rail services to connect inland shippers (beyond 250 miles or so) with the Port. Actual intermodal rail volumes are expected to exceed the underlying economic forecasts. The Georgia Statewide Transportation Plan Update calculated that this effect would add another 4,765,000 tons of intermodal traffic to the year 2025 baseline forecast (midpoint estimate). The Port's non-intermodal facilities are expected to grow at rates consistent with the baseline bulk rail forecasts, so no adjustments are needed.

Table 2.8: 2025 Rail Forecasts with Port Adjustment

	1998	2025		
		Baseline	Port Adjustment	Total
Intermodal Container Tonnage	1,360,256	2,321,803	4,765,000	7,086,803
Equivalent TEUs (7 tons per TEU)	194,322	331,686	680,714	1,012,400
Bulk Tonnage	26,103,731	36,657,980	0	36,657,980
Total Tonnage	27,463,987	38,979,783	4,765,000	43,744,783

Currently, the Mason ICTF is serving three NS trains per week, with plans to increase service to seven NS trains per week. At this point, the number and routing of NS and CSX trains for year 2025 cannot be reliably predicted. Current distribution patterns suggest that for Savannah origin and destination intermodal traffic, about 40% is routed north and west toward Atlanta, about 30% is routed south, and about 30% is routed north, but future patterns may differ.

Shortline Railroads

For many industrial shippers -- particularly industries that ship high-weight materials such as kaolin or paper -- rail is a more cost-effective transportation option than truck. Such shippers are negatively affected when rail transportation is not available; conversely, such industries can be positively affected when rail transportation is made available. The availability of rail service to both high and low-volume shippers may be a critical component of a state's overall economic development strategy.

Over the past several decades, the nation's rail system has actually lost mileage, as the major Class I railroads have "disinvested" by curtailing service on their lower-profit lines to focus their service and investment on higher-profit lines. This has meant, in many cases, the loss of rail service for rail-dependent shippers. Many states have developed programs to purchase and preserve shortline rail and right-of-way in an effort to support these shippers.

Within the study area, the Georgia Department of Transportation has purchased major sections of the Heart of Georgia (which runs from Omaha, GA through Americus and Cordele to Vidalia, paralleling US 280), the Georgia Southwestern Railroad (between Columbus and Cusseta, and between Cuthbert and Bainbridge) and the Ogeechee Railway (between Vidalia and Midville). Combined with the Georgia Central Railway (between Vidalia and Savannah), this provides an east-west shortline railroad corridor through the heart of the study area. This shortline corridor supplements the Class I routes, which generally run through the study area in a north-south direction.

Traffic on this east-west corridor is forecast to grow at rate consistent with overall rail growth, based on increased volumes from current customers and/or attraction of new customers. For example, a new service to an Alabama customer is under discussion. Under the high forecast, shortline volumes are projected to more than double. In addition, there are two scenarios under which these forecast volumes might be exceeded:

- Major improvements to shortline services, possibly including improvements to travel speeds, allowable weights, signalization, service frequency, price, or marketing (to reach and educate potential customers about the availability of rail). Such improvements could also address an existing conflict condition where the Georgia Central line has to cross a Class I line to access the Savannah waterfront.

- Development of an "inland port" served by shortlines. An inland port is a complex that links major transportation assets (rail mainlines, rail branch lines, major highways), major transportation users (warehousing and value-added industries), and an international seaport (via an efficient, cost-effective rail or truck corridor). There are two reasons for developing an inland port: to relieve congestion at marine terminals, or to generate economic activity at the site of the inland port. To date, the only major inland ports developed in the US are at Front Royal, VA (where NS crosses I-81) and in Columbus, OH (where the "Columbus Inland Port" has service partnership agreements with the Port of New York and New Jersey). The idea of developing an inland port complex near Cordele (where the Heart of Georgia crosses I-75, and through which the NS and CSX pass) has been raised, and while its feasibility has not been determined, it represents a potential opportunity for further exploration by the state and/or the railroads.

Potential Changes in Freight Mode Choice

The highway and rail network forecasts presented above suggest that, for the most part, these mode shares will remain constant into the future. Conditions under which these mode shares might change and the potential impact of any such changes on the highway and rail network forecasts need to be considered. Initially, the study team had planned to develop a quantitative shipper choice model, but after completion of the Phase 1 data collection effort, it was determined to approach this issue more broadly by developing and testing a range of feasible "what if" network scenarios using the Network Analysis Tool developed specifically for this project.

Truck to Water/Rail to Water

Waterborne domestic freight movement in the study area counties is associated with two systems: coastwise domestic movements to/from the deep-draft ports of Savannah and Brunswick; and inland domestic movements to/from the shallow-draft ports of Columbus and Bainbridge.

Leading domestic waterborne commodities include petroleum, waste and scrap, chemicals, and little else. These movements are almost exclusively coastwise, as there is little traffic through the ports of Columbus and Bainbridge. The coastwise domestic shipping system therefore functions as an alternative to trucking along I-95 or rail along the eastern seaboard systems of the Norfolk Southern and the CSX. Coastwise domestic shipping does not offer an alternative for east-west moves or inland moves within the study area.

The commodities that have chosen water instead of truck or rail have largely done so because it is very inexpensive in comparison to the other modes, with the tradeoff that water movement also tends to be slower and less reliable (in terms of delivery time) than other modes. The commodities that use water also use truck and rail. However, water is not the dominant mode of transport for any of these commodities.

Table 2.9: Waterborne Commodities and Mode Shares (Excluding Air and Pipeline)

STCC2	Commodity Type	Water Tons	Water Share	Truck Tons	Truck Share	Rail Tons	Rail Share	TOTAL
29	Petroleum or Coal	1,052,822	15%	5,226,925	76%	578,355	8%	6,858,102
40	Waste or Scrap	482,921	40%	0	0%	736,576	60%	1,219,497
28	Chemicals	194,003	2%	6,397,339	70%	2,511,306	28%	9,102,648
	All Other	10,251	0%	81,834,248	78%	23,359,212	22%	105,203,711
	TOTAL	1,739,997	1%	93,458,512	76%	27,185,449	22%	122,383,958

Source: Cambridge Systematics, Inc. analysis of Transearch data.

Domestic waterborne shipping is expected to become somewhat more efficient over time, but in general no dramatic increases in capacity or performance are expected relative to trucking or rail. At the national level, public transportation planners are hopeful that domestic waterborne shipping might handle an increasing share of intermodal container movements along the eastern seaboard in order to relieve congestion along I-95, but given strong competition from trucking and rail, the marketability of such waterborne services remains highly uncertain. Therefore, any significant gain or loss in waterborne mode share with respect to trucking or rail is unlikely; and given the very low tonnages associated with domestic waterborne transport, it would take a substantial change in waterborne mode share to have any measurable impact on truck or rail markets.

Truck to Rail

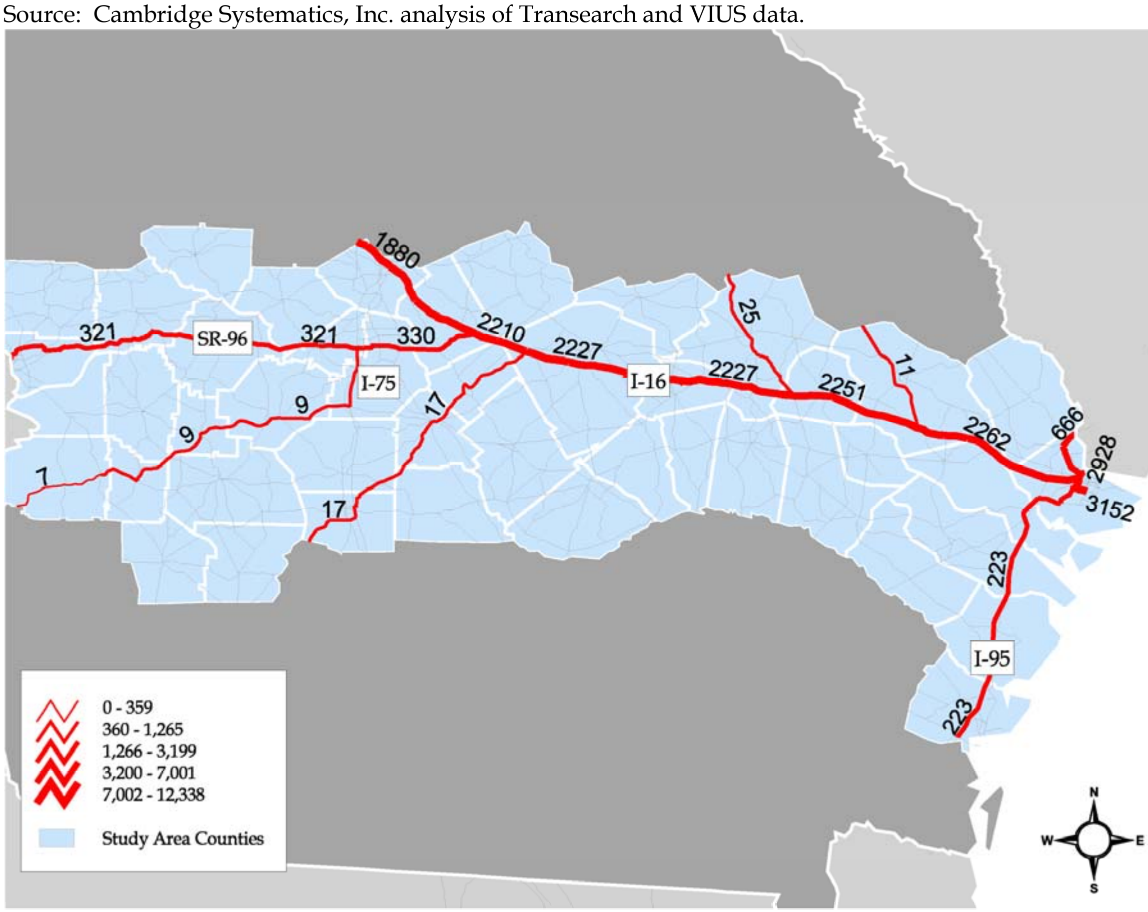
Because rail accommodates 22 percent study area tonnage and competes directly with trucks, the potential for rail-to-truck diversion needs to be considered.

Improvements at the Port of Savannah

With the new Mason ICTF, rail service to and from Savannah immediately becomes a more attractive option for long-haul domestic intermodal shippers who might otherwise use trucks. On this basis, we might expect that intermodal rail into and out of Savannah could gain increased market share from long-haul trucking. Long-haul truck trips into and out of Chatham County – some of which may be divertible to rail – are mapped in Figure 2.17.

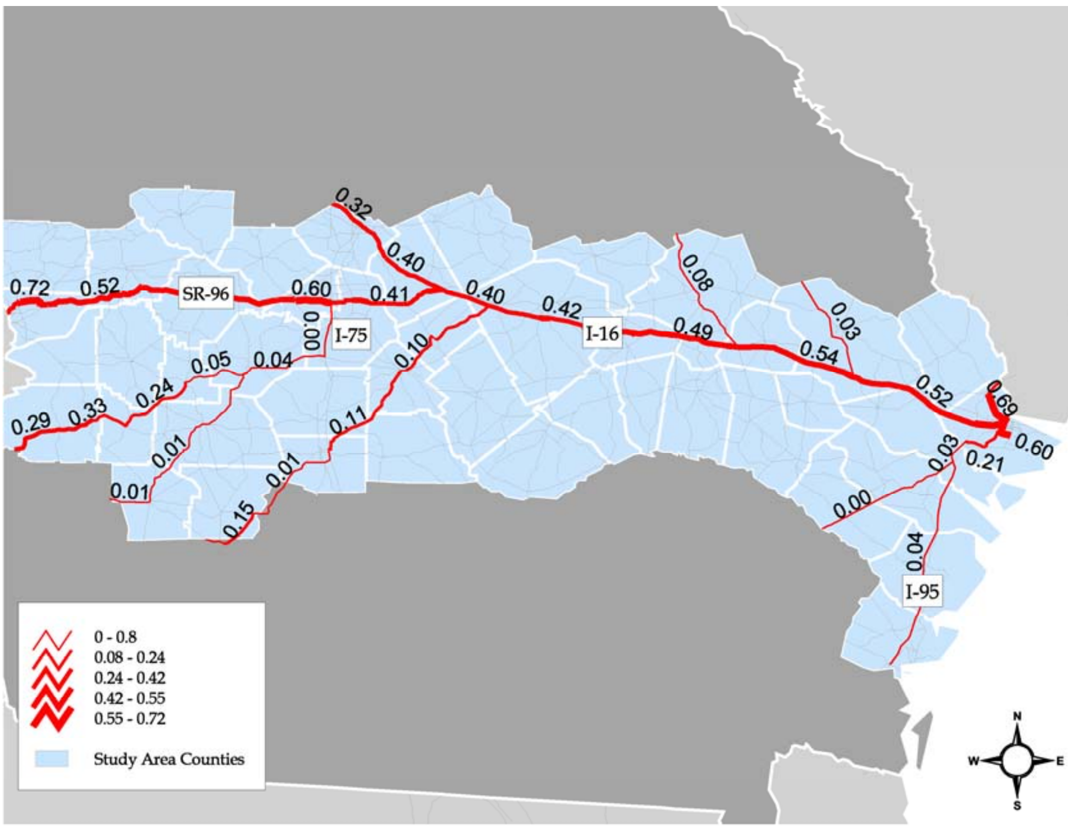
Figure 2.17: Current Daily Long-Haul Truck Flows (Vehicles >250 Miles) to/from Chatham County

Source: Cambridge Systematics, Inc. analysis of Transearch and VIUS data.



If we compare Figure 2.17 with a map of all daily truck flows, we see that long-haul trucking into and out of Savannah accounts for very high percentages of total truck traffic on the I-16 and SR 96 corridors, and on SR 21 and I-516 in Chatham County, but accounts for low percentages of total truck traffic on I-95, I-75, and other routes.

Figure 2.18: Current Daily Long-Haul Truck Flows (Vehicles >250 Miles) to/from Chatham County as a Percentage of Total Daily Truck Flows to/from All Study Area Counties



Source: Cambridge Systematics, Inc. analysis of Transearch and VIUS data.

In Phase 3 of this project, we will test a variety of diversion scenarios based on distance, commodity, and origin-destination pair factors. As a simplified illustration of how the analyses will be performed, we can begin with an assumption that up to 10 percent of long-haul truck trips could be divertible to rail based on input from Norfolk Southern and CSX. The impact of diverting 10 percent of the Chatham County long-haul truck trips to rail would be most significant on I-16 and SR 96. For example, on I-16 – where Chatham County long-haul trucks represent 50 percent of the truck traffic – diverting 10 percent to rail could produce a five percent improvement in I-16 truck volumes (a reduction of around 225 trucks per day). Alternatively, on I-95 – where Chatham County long-haul trucks represent just four percent of the truck traffic – diverting 10 percent to rail would produce an improvement of just 0.4 percent.

Overall, of the more than 93 million truck tons moving into and out of the study area counties, nearly 39 million tons are long-haul trips more than 250 miles. A little more than 18 million of these tons are to/from Chatham County. The other study area counties were examined to see if the remaining 21 million tons "clustered" into large units which might – if diverted to intermodal rail – support new or enhanced intermodal rail service.

Table 2.10: Long-Haul Truck Tonnage by County (Vehicle Moves >250 Miles)

County	Tonnage
Chatham County, GA	18,116,682
Bibb County, GA	6,248,278
Glynn County, GA	4,899,212
Muscogee County, GA	2,457,911
All Other (none over 750,000 tons)	7,276,708
TOTAL	38,998,791

Source: Cambridge Systematics, Inc. analysis of Transearch data.

Clearly, Chatham County is the biggest generator of long-haul truck traffic and provides the largest market base for intermodal rail activity. However, there are significant concentrations of long-haul truck activity in Macon (Bibb County), Brunswick (Glynn County), and Columbus (Muscogee County). Several of these areas already have intermodal rail transfer facilities in place and might receive some benefit from increased intermodal rail activity.

Improvements to Shortline Railroads

Within the study area, bulk appears to be a largely a stabilized market – certain commodities have selected (or not selected) rail as their preferred mode in given corridors – and where the competitive balance between modes remains unchanged, these established modal preferences are expected to continue. One potential change in this competitive balance, as noted earlier, is related to the effect of shortline railroad improvements that would substantially increase the attractiveness of rail in the US 280 corridor and allow for rail volumes in excess of forecasts. Most of the existing freight through the US 280 corridor is bulk, and existing rail traffic over the Heart of Georgia is entirely bulk (5000 annual carloads of grain, chemicals, feed, fertilizer, lumber, pulp and scrap metal), so we would anticipate that any diversion from truck to rail would primarily affect bulk commodities. However, the "inland port" concept is a potential generator of container traffic as well. While conclusive determinations of feasibility and demand associated with such shortline improvements would need to be customer-specific and are therefore beyond the scope of this study, we can test the network effects of potential diversion from truck to shortline rail using the same methodology outlined for domestic intermodal truck-to-rail diversion.

Roadway Network Planning Tool

The mode choice scenarios to be developed in Phase 3 will be tested using the Roadway Network Planning Tool. The Roadway Network Planning Tool is a program based on ArcView Network Analyst and can re-route truck trips in response to new roads, such as bypasses, faster speeds (such as those caused by upgrading a road by adding medians or access control), or adding more lanes. The Tool can find the new shortest paths resulting in new truck assignments for 1998 and 2025 truck trips. The new routings are based on paths selected by minimizing the total distance, free flow time, or congested travel time on the paths between an origin and a destination. The Tool does not change the routing of non-freight traffic, but that traffic is used to calculate congested times. The best approximation to the Transearch predefined paths is achieved by selecting paths minimizing distance. This is consistent with paths selected by truckers who are trying to minimize total costs that in turn are based on distance. The Tool might also be used to show the truck flows based on minimizing free flow and congested times. The Tool is ready to test alternatives for the Central Georgia Corridor project during Phase 3 and will be provided to GDOT at the end of the project.

Conclusions

This chapter has presented current highway and rail volumes and future highway and rail forecasts. These traffic projections will guide the future phase of this project – the development of recommendations for capacity and operational improvements.

- The baseline for the daily freight corridor traffic was established by linking the 1998 Transearch commodity flow information (annual tonnages organized by two-digit STCC2 commodity level with average truck payload factors derived from the Georgia subset of the national VIUS database), which provides estimates of truck load by commodity and distance class. Once annual truck equivalents were derived, they were converted into daily truck equivalents. In turn, the 2025 projection required the 1998 daily truck equivalent data to be grown according to growth factors developed through the REMI modeling process, which is an input-output type of modeling procedure based on predefined REMI product classes.

- The non-freight traffic AADT for each section of the highway was developed from existing GDOT information, specifically the 1998 HPMS data file. The forecast of the 2025 non-freight AADT employed a 1.9 percent growth rate, in accordance with the estimation methodology that is being used for the statewide transportation plan.

- Current and future freight and non-freight AADT were used to calculate V/C ratios and were subsequently mapped on the Corridor highway network. Those maps show current concentrations of high V/C primarily in and around the three metropolitan areas in the Corridor and future level of service deterioration on all segments of I-75 and I-95 and some segments of routes near smaller activity centers.

- Rail forecasts were developed using the REMI data and DRI/WEFA/Transearch projections. Key adjustments to these forecasts relating to port activity and shortline railroads were presented.

A methodology for addressing potential changes in mode choice among truck, rail, and waterborne freight was developed. Potential changes in freight mode choice will be further tested as "what if" scenarios with the aid of the Roadway Network Planning Tool developed for this project. The Roadway Network Planning Tool was developed to run in ArcView GIS to re-route truck trips in response to changes in the highway system. These changes include new roads, bypasses, faster speeds, widening, and other changes to design and capacity. In Phase 3, the tool will allow for the testing of alternatives and GDOT improvements in the Corridor to determine how these changes and alternatives affect freight movement.

3 Implications for GDOT Maintenance Program

Introduction

The Central Georgia Corridor Study is a study of freight movements. Freight movements, especially the movement of large trucks, can damage roadways and their abutments because of truck weight and turning movements. This chapter will assess the implications of current and future freight on the GDOT infrastructure program and will report on the study team's investigation into innovative technologies.

The percentage of truck traffic in the study area is increasing dramatically. Truck percentage around the Port of Savannah has historically been seven to eight percent, but is now 15 percent. Projected future trends suggest continued growth of truck traffic through 2025. Due to the current high truck volumes and projected growth, the study team examined new techniques and technologies that provide information on making the Central Georgia Corridor efficient and desirable for freight movement.

In order to determine implications of additional freight on the GDOT maintenance program, three key tasks were carried out. First interviews with knowledgeable GDOT officials were conducted. Secondly, maintenance, design, and construction standards were researched and evaluated. Finally, maintenance deficiencies were identified along the HPC 6 mainline and connecting roads.

Background

The National Corridor Planning and Development Program (NCPD) provides funding for the planning, design, construction, and related activities of projects that improve specific corridors identified by Congress. Some of these projects are freeways that require limited improvements, while others are two or four lane highways requiring coordinated upgrading. Others are proposed highways in various stages of development.

The Coordinated Border Infrastructure Program (CBI) funds projects that improve transportation in the vicinity of borders with Canada and Mexico. NCPD and CBI projects are collectively called the Corridors and Borders Program (CORBOR).

A common thread that runs through the host of approved CORBOR grants are improvements in mobility and safety. One important aspect of previously approved grant applications was multi-state coordination. Another important aspect of successful proposals was support from multiple agencies. Some projects with strong support include private sector financial contributions for the construction of grade separations and other port related access improvements.

The most commonly cited practical benefits of CORBOR funded projects are increased mobility and safety. Improved ability to support the movement of vehicles of all types, but particularly trucks, is a fundamental consideration in these corridor projects. Measures of increased mobility can be projected in terms of an increased number of vehicles per hour able to travel a certain distance.

Increased safety resulting from grade separations at railroad crossings, increased capacity for motor carrier safety inspections, and the diversion of traffic from undivided two-lane highways to freeways is common in many of the selected CORBOR projects. Other projects improve safety on access ramps or at highway intersections and interchanges.

Significant benefits are expected to emerge from applications that rely on new technology. ITS America has noted the intelligent transportation system (ITS) elements and benefits included in CORBOR projects. About one fifth of the projects include such ITS elements as: variable message signs, web-based traveler information services, automatic equipment identification, electronic data interchange for commercial vehicle manifests, electronic toll collection, and transponder-based vehicle pre-clearance.

Many electronic technologies are used successfully in the transportation industry. Among these technologies are transponders, Internet communications for scheduling drivers and cargo, and information systems for expediting intermodal operations. If these technologies can be economically and reliably used in the CORBOR projects, it should be easier to achieve other projected benefits, such as increased capacity, better use of equipment and facilities, optimizing the intermodal connections, economic savings, social benefits, and safety.

ITS technologies are good candidates for the NCPD program. Technologies allowing shippers and freight haulers to operate their fleets more efficiently and, therefore, more cost-effectively will help them compete. In addition to ITS, two other technologies are examined here. The Long Term Pavement Performance (LTPP) Program is the American Association of State Highway and Transportation Official's (AASHTO) new pavement design procedure using decades of historical performance data from real world test sites. The second technology is known as whitetopping, where Portland Cement Concrete (PCC) overlays are used on heavily traveled intersections as an effective way to reduce maintenance needs.

Georgia has the best-maintained highways in the nation. Improving upon that prestigious position is only possible by assuring that more of the state's highways possess the high quality of the best of our highways. Truckers want expedited routes that eliminate bottlenecks and minimize delays. The Central Georgia Corridor must provide significantly better travel times than competing routes to attract more trucks to this designated freight corridor.

Identifying and eliminating freight movement delays is an important aspect of this study. Major bottlenecks along freight corridors occur at rail crossings and in small and medium sized cities. Some of the most successful ports have undertaken mammoth capital improvement programs to provide rail/roadway grade separations. The development of bypasses and grade separations can help to further eliminate freight movement delay.

Current Highway Maintenance Activities

In addition to the General Office in Atlanta, the GDOT is comprised of seven districts throughout the state that are responsible for operating and maintaining the transportation system at the local level. During the research phase of this study, each District Maintenance Engineer within the Central Georgia Corridor was interviewed. Documentation from each interview may be found in Appendix A.

Information gathered from District Maintenance Engineers included normal maintenance activities, anticipated activities necessary to accommodate heavy truck movement, and planned projects along HPC 6 and US 280 for improving the flow of heavy truck traffic. Areas known to be in need of improvement that are not currently listed in the GDOT Construction Work Program (CWP) were also identified. Knowledge of new technologies to improve freight corridors was discussed, as was the possibility of using PCC, commonly used on interstate highways. Finally, the District Maintenance Engineers provided important information about current pavement design and roadway design standards on freight corridors.

Highway maintenance protects the roadway infrastructure and improves public safety on the highway system. The goal of maintenance is to retain the highway system in a condition as near as possible to the condition of its initial construction or subsequent improvement. Routine maintenance includes activities such as guardrail repair, pavement repair, drainage work including catch basin cleaning, bridge operations and repair, traffic signal and illumination repair, pavement marking replacement, sign repair, and mowing. Emergency maintenance includes traffic control, bridge and roadway inspection, clean up and repair related to flooding, accidents, and hazardous materials spill. Maintenance also includes snow and ice control activities when necessary.

The development of a fiscal year Resurfacing Program in Georgia begins in the spring prior to that fiscal year with an on-site Pavement Condition Evaluation System (PACES), which is performed in one-mile increments on every state route in Georgia. Roads with a PACES rating of 70 or less are further evaluated to determine if they are good candidates for preservation actions. The rating is used in conjunction with other criteria to develop a prioritized listing of state routes that require resurfacing and rehabilitation. The list is then used to establish which locations are to be resurfaced. The objective of the resurfacing work performed is to extend the service life of an existing pavement by three to five years through the use of lower cost surface treatments, such as chip seal and slurry seal type applications. The placement of such treatments will rehabilitate existing pavements by sealing the pavement surface and will also provide a smoother riding surface. Surface treatments do not add additional strength to a pavement, but their application enables more miles of roads to be resurfaced and rehabilitated with the funding available.

Over the last couple of years the GDOT has been instrumental in implementing new asphalt mixes that will extend pavement life to 12 years. These new mixes, such as Stone Matrix

Asphalt (SMA) and Superpave, have been used on several routes around the state and, in 1998, the GDOT began using these mixes for all paving.

The GDOT now has COPACES, a computerized pavement condition survey, and GPAM, the Georgia Pavement Management System, developed with Georgia Tech. GPAM utilizes COPACES data and, based on the distresses, determines the type of pavement system needed. GPAM uses Geographic Information Systems (GIS) to consider different soil types and uses the most sophisticated system for optimization.

There are other maintenance activities that are routinely done for roadway surfaces, shoulders, drainage areas, and markings. Each GDOT district office is responsible for these activities within their jurisdictions.

Roadway Surfaces

Types of roadway surfaces are aggregate (stone), flexible (asphalt), and rigid (concrete). Flexible pavements require sand, chip, slurry, and asphalt overlay sealing for maintenance and pothole repair. Rigid pavements require patching, joint and crack sealing, grouting, jacking, under-sealing, grinding, grooving, and milling for maintenance.

The GDOT uses the AASHTO 1972 Interim Guide for Design of Pavement Structures for flexible pavement design. Dynamic loads at bridge ends cause a great impact on the pavement. The GDOT strives to maintain smooth bridge ends, but many are not. The proposed structural number is 90% (10% under) the required structural number. Every ten years, the GDOT adds 1½ inches of asphalt to roadways. For the rehabilitation of existing pavement, the GDOT Pavement Evaluation Engineer takes core samples to determine the asphalt overlay required. The Pavement Engineer evaluates whether the roadway requires full depth reconstruction or milling and overlay.

For rigid pavement, the GDOT is trying to limit the flexural stress in the concrete. New concrete has an allowable flexural stress of 600 psi, so the GDOT uses 450 psi as a target. Failure occurs when there is loss of support with fine particulate material (fines) pumped out through the joints. The GDOT now dowels all joints, which helps prevent pumping of fines.

The typical rigid pavement design for an interstate is 12 inches of PCC over five inches of asphalt or econocrete (lean concrete mixture), and then 12 inches of graded aggregate base course. Graded aggregate gives a working surface for construction equipment. Econocrete eliminates the possibility of fine particles being pumped out.

Roadway Shoulders

Roadway shoulders maintain lateral pavement support and provide breakdown or emergency lanes for vehicles. The slope and surface of shoulders require maintenance similar to that of roadway surfaces.

Drainage

To prevent water damage, roadways require crowns, ditches, and cutoffs. Maintenance activities include ditch cleaning, vegetation control, ditch repair, and erosion control.

Markings

Roadway markings include lines, symbols, words, and delineation patterns that regulate traffic and provide information. Raised reflective pavement markers capture light from oncoming headlights and reflect this light back to drivers for guidance at night and in poor visibility weather conditions. Markers are sealed into place with epoxy. When installed, the markers protrude approximately ½ to ¾ inches from the level surface. White and yellow reflective markers are generally used to amplify painted lines. Red reflective markers are used as wrong way indicators. Blue reflective markers are used to mark utility locations for a limited time period.

Maintenance

The U.S. spends $25 billion per year on pavement maintenance, of which $15 billion is for the 90 percent of roadways that are paved with asphalt.[1] The state spends approximately $2 million per year on joint sealing on state routes. The cost break down is 50 percent labor, 25 percent equipment, and 25 percent material cost. The GDOT spends approximately $6,700 per centerline mile on maintenance yearly and this does not include resurfacing cost.

Georgia has a safe and efficient network of interstates, highways, county roads, and city streets; which together form a public road system that carries travelers throughout the state.[2] As of 1999, Georgia had a total of 112,565 miles of public roadways. Table 3-1 shows the roadway mileage in different areas of the state and provides mileage and daily vehicle miles traveled (DVMT) for each type of roadway. Table 3-2 shows the total roadway mileage maintained by the State compared to the mileage maintained by local governments.

[1] Advanced Highway Maintenance and Construction Technology Research Roadmap for Roadways website. http://www.ahmct.ucdavis.edu/general/splan2.htm.

[2] Georgia Department of Transportation Fact Book 2000.

Table 3-1
Mileage and Daily Vehicle Miles Traveled on Georgia Roadways

Rural Areas	**Mileage**	**DVMT**
State Highway System	14,187	51,301,199
Interstates	810	27,848,181
County Roads	66,654	28,587,728
City Street	3,863	1,901,076
Small Urban Areas		
State Highway System	999	11,494,707
Interstates	79	3,582,973
County Roads	2,749	5,024,325
City Street	3,865	5,407,735
Urban Areas		
State Highway System	1,533	35,615,923
Interstates	355	40,287,276
County Roads	11,698	37,281,100
City Street	5,773	15,066,936
TOTAL	112,565	263,399,159

Source: GDOT 2000 Fact Book

Table 3-2
Total Road Miles Maintained by the State Compared to City and County

Source of Maintenance	**Mileage**	**DVMT**
GDOT	17,963	129,842,983
City and County	94,602	93,268,900

Source: GDOT 2000 Fact Book

These tables reveal the enormous responsibility the state has in maintaining its roadways. The roads on the State Highway System carry 58% of the daily VMT in the State of Georgia. Funding for resurfacing projects must be increased so existing pavement life can be extended, avoiding the more expensive costs of reconstruction or major rehabilitation. Likewise, strong assistance through funding of city and county resurfacing projects is needed.

As previously noted in this chapter, freight travel will be increasing in the Central Georgia Corridor in the future. Allowable truck weight may also increase. Because the wear and tear on interstates and highways will be substantial, vigilance in maintenance and use of best practices will be needed.

During this study, maintenance and design best practices were developed for analyzing roadways along the HPC 6 mainline and connecting road system. These best practices for high truck freight areas can be utilized in two ways: as a guide for future construction and to determine where the existing transportation system might be improved.

- Wide outside shoulders – 10 ft minimum, 12 ft desirable
- Full depth shoulders
- Portland cement concrete (PCC) or whitetopping for non-interstate mainline
- Concrete pavement or whitetopping on interchange ramps and intersections
- Increased use of grade separations and interchanges on high freight routes
- Increase safety at interchanges
- Replace bridges with a sufficiency rating of 60 or below
- Design bridges for HS-20 loads or greater
- Smooth bridge ends to decrease dynamic loads on pavement
- Replace or discontinue building steel or continuous steel bridge structures
- Bridges with a vertical clearance of at least 17'
- HPC 6 mainline grade separations at all railroad grade crossings.

The improvements below highlight the additional current maintenance activities performed by GDOT.

Gradual Side Slopes

Gentle front slopes along the roadway create less risk of vehicles over-turning if they leave the road and help drivers regain control.

Forgiving Devices

Roadway features such as signs and utility poles which breakaway on impact; barrier walls or guardrails that redirect vehicles away from hazards; and crash cushions, which absorb energy and lessen the severity of crashes.

Signing, Pavement Marking, and Delineation

Traffic signs, pavement markings, and reflective devices improve driver perception of important roadway features and alert them to changes in roadway geometry or other conditions.

Pavement Improvements

Resurfacing, rehabilitating, or reconstructing the roadway surface provides greater smoothness.

Increased Surface Friction

Greater surface friction provides drivers with increased traction for maneuvering and stopping.

Preventive Maintenance

Maintenance can eliminate drop-offs between the road pavement and shoulder or adjacent lane that can cause drivers to lose control when attempting to return the vehicle to the road surface.

Stabilizing Shoulders

Improvements in the stability of the material covering roadway shoulders help drivers control their vehicles and return to the roadway.

Adding or Widening Shoulders

Shoulders provide drivers with additional room to maneuver, storage when a breakdown occurs, and are part of a forgiving roadside that reduces the frequency of run-off-the-road type of accidents.

Edge Treatment

Constructing the roadway slab with a concrete shoulder is a way to enhance edge of pavement design. Truck wheels usually track within two to three feet of the edge of pavement. Durability can be increased by providing additional strength or thickness along the edge of pavement on a roadway.[3]

Widen Lanes

Wider lanes provide a larger road surface on which to maneuver in an emergency without leaving the road surface. They also provide a feeling of security for drivers in the vicinity of large freight trucks.

Lane Channelization

Separate lanes for left or right-turning traffic avoid impediments to traffic flow that can lead to rear end crashes.

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[3] *Effects of Heavy-Vehicle Characteristics on Pavement Response and Performance.* NCHRP Report 353. Transportation Research Board. Washington D.C. 1993.

Pedestrian/Cyclist Facilities

A variety of techniques can be used to separate pedestrians and cyclists from motor vehicle traffic to improve safety.

Widening Bridges

Twelve-foot lanes are preferable. Additions of shoulders can further enhance safety.

Bridge Treatments

The addition of features such as crash cushions or guardrails as transitions to the bridge ends improves the safety around bridge structures.

Signing and Pavement Markings for Bridges

Signs and pavement markings alert drivers approaching narrow bridges and allow them to position their vehicles most safely when crossing bridges.

Recommended Additional Maintenance and Construction Activities

The improvements recommended below for the Central Georgia Corridor could further improve the attractiveness and competitiveness of the region for freight movement.

Evaluate Truck-Only Facilities

Truck only facilities such as truck lanes or separate roads for trucks in the area surrounding the Port of Savannah could address the high volume of trucks and improve safety. This type of improvement would eliminate a heavy through truck movement in Downtown Savannah on Bay Street (17% trucks) and improve capacity within the Central Business District (CBD).

Upgrade Rural Highways

This study identifies deficiencies along rural highways and arterial roads. The added freight movement projected for the Central Georgia Corridor requires that the roadways accommodate the size, weight, speed, and volume of trucks anticipated in the future. Specifically, State Route 96 is an integral part of the HPC 6 mainline, but to move freight efficiently along this roadway major improvements would be required, such as bypassing Ft. Valley and widening SR 96 between I-75 and SR 247.

Construct Grade Separations at Key Intersections and Railroads

This study has identified needed railroad/roadway grade separation projects along the Central Georgia Corridor. Removing delays caused by railroads and busy intersections will provide a more efficient and safe freight corridor.

Whitetopping

Most interstate highways in Georgia are paved with Portland Cement Concrete while the majority of the other highways have asphaltic concrete pavement. Within the last few years, concrete overlays on existing asphalt pavements have been used on roadways surrounding the Port of Savannah. Concrete overlaid on asphalt pavement is commonly referred to as whitetopping. Variations of whitetopping include:

- Conventional whitetopping – a concrete overlay, usually of a thickness of four inches or more, placed directly on top of asphalt pavement.
- Concrete inlay – a concrete overlay placed in a trench milled out of a thick asphalt pavement.
- Ultra-thin whitetopping (UTW) – a concrete overly, usually less than four inches thick placed on an asphalt surface that is prepared to enhance the bond between concrete and asphalt.[4]

Whitetopping an existing asphalt pavement provides many benefits including superior service, long life, low maintenance, low life-cycle cost, improved safety, and environmental benefits.[5]

Whitetopping is traditionally used to repair the rutting of asphalt pavement caused by trucks stopping and starting. The flexibility of asphalt allows forces exerted by trucks to produce rutting on the roadway. The adjacent aerial photo shows an intersection that was reconstructed with PCC. The GDOT District 5 has several key intersections that carry a large volume of heavy trucks to and from the Port of Savannah. District 5 maintenance crews rehabilitated these asphalt intersections approximately every four months due to the extreme rutting, shoving, and cracking caused by heavy trucks. Four years ago District 5 whitetopped these key intersections and to date they have not deteriorated or needed maintenance attention. Whitetopped intersections have a service life much longer than typical asphalt intersections. Generally, whitetopped intersections will have a service life of 8-12 years, depending on the truck volumes, the sub-base design, and the thickness of the PCC. The asphalt overlays exhibit a

[4] *Whitetopping – State of Practice.* Engineering Bulletin, American Concrete Pavement Association.
[5] *Ibid.*

more rapid loss of serviceability in comparison to concrete whitetopping and whitetopping key intersections is a proven way to reduce maintenance.

Promising New Technologies

Long Term Pavement Performance (LTPP)

In 1984, the Strategic Highway Research Program (SHRP) identified pavement maintenance as one of six priority areas for research and development. Understanding why some pavements perform better than others is a key to building and maintaining a cost-effective highway system. In 1987, the LTPP program, a comprehensive 20-year study of in-service pavements, began a series of rigorous long-term field experiments monitoring more than 2,400 asphalt and PCC pavement test sections across the U.S. and Canada.

The goal of the LTPP program will address how and why pavements perform as they do. LTPP's analysis program takes the raw data collected from the program's more than 2,400 pavement test sections and converts it into useable information. The program addresses a broad array of topics including field validation of pavement design procedures, studies of variability in traffic and materials data, and investigation of the development of pavement roughness. Some analyses have led to the development of products, such as Rigid Pavement Design software. All analyses, however, provide valuable insight and direction to guide future LTPP data collection and analysis efforts.

Since 1999, the Strategic Plan for Long Term Pavement Performance Data Analysis has guided the national level analysis of the LTPP data. The plan sets forth seven strategic objectives supporting the goal "to develop knowledge, relationships and models to facilitate improved pavement design and reliable performance predictions." Each strategic objective is, in turn, supported by several more focused "product objectives".[6]

As part of the LTPP program, the AASHTO *Guide for the Design of Pavement Structures* is widely used in the design of new and rehabilitated highway pavements. However, the current Design Guide, published in 1993, is widely recognized as being inadequate for the design challenges currently faced by State DOT's.[7] In fact, the GDOT uses the 1972 interim Design Guide in designing new and rehabilitated pavements throughout the state. Because the 1993 Design Guide does not provide the best design guidelines, the National Cooperative Highway Research Program (NCHRP) is in the midst of writing a new pavement design guide entitled, *Development of the 2002 Guide for the Design of New and Rehabilitated Pavement Structures.*

The benefits of this new guide, as stated in the *LTPP and the 2002 Pavement Design Guide* brochure will provide tools to enable the designer to:

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[6] LTPP Analysis website. http://www.tfhrc.gov/pavement/ltpp/analysis.htm

[7] *LTPP and the 2002 Pavement Design Guide* Brochure. U.S. Department of Transportation, Federal Highway Administration.

- Evaluate the effects of variation in materials, traffic loading conditions, and design features.
- Consider both long-term and short-term changes in material properties
- Provide more accurate performance predictions so that the frequency of premature failures is reduced, resulting in an estimated average savings in pavement rehabilitation of $1.14 billion per year nationally during the next 50 years
- Improve the ability to evaluate premature failures and factors contributing to exceptionally good performance
- Provide greater adaptability than the current Design Guide.[8]

Previous versions of the Design Guide were derived from the limitations of AASHTO's Road Test. The research that has gone into the 2002 Design Guide will assist in addressing many limitations to the AASHTO Road Test.[9]

- The LTPP data has sections with very high traffic loadings.
- Some of the test sections represented in the LTPP database have been in service for 30 years or more.
- The LTPP database has performance data on rehabilitated pavements.
- The LTPP sections cover all climatic conditions in the United States.
- The LTPP sections cover a wide range of subgrade materials.
- The LTPP sections have a variety of base materials.
- The LTPP sections represent the wear from vehicle fleet of the 1980's and 1990's.
- The LTPP has some sections with drainage systems.
- The LTPP data supports distress – specific performance models.

The limitations to the 1993 Design Guide are well documented. The GDOT recognized these limitations when choosing not to adopt the 1993 Design Guide. When the 2002 Design Guide is released, it is recommended that the GDOT conduct an evaluation to determine if its adoption over the 1972 Interim Design Guide would be beneficial in maintaining the roadways in Georgia.

Adequately designed substructure for the vehicular traffic and truck percentages is needed or whitetopping will structurally fail in the same manner as asphalt pavement. At least three to four inches of asphalt should be provided under the whitetopping or UTM. Ultra-thin whitetopping will not last as long as traditional whitetopping, but the service life is still approximately eight to ten years depending on the traffic volumes and truck percentages.

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[8] *LTPP and the 2002 Pavement Design Guide* Brochure. U.S. Department of Transportation, Federal Highway Administration.

[9] *Ibid.*

Full Depth Concrete

The adjacent picture demonstrates how asphalt surfaces rut at high volume intersections. In 1994, the Washington State DOT (WSDOT) began replacing selected asphalt pavement with full depth PCC pavement at key intersections. Information on the design and construction of these concrete intersections are provided in Appendix B of this report. The WSDOT studied the use of PCC for urban intersections. Statewide, fifteen PCC intersections have been constructed on state highways, and more will be built in the future. The study noted that PCC intersections eliminate the significant rutting problems that sometimes occur with asphalt roadways. This report includes lessons learned about PCC intersection construction costs, life cycle costs, traffic control/staging, design and construction considerations, and quality control issues.

The WSDOT reported an advantage of using PCC was its 40-year design life with minimal or no rehabilitation required. The construction user costs and disruption to traffic that are necessary with future asphalt overlays during its 40-year design life are eliminated when PCC is used. The major disadvantage with PCC intersections is the initial construction cost. However, a life cycle cost analysis, performed by the WSDOT revealed that the PCC intersection construction competes with and can be less expensive than rebuilding with asphalt. The initial PCC intersection costs ranged from $455,500 to $982,200, where the initial asphalt intersection costs ranged from $349,800 to $728,600. [10]

Summary

Considering the implications of additional freight in the Central Georgia Corridor, the GDOT maintenance program must continue to evaluate and implement roadway maintenance technologies. The GDOT currently performs roadway maintenance activities to improve capacity and mobility. In addition to current maintenance activities, the GDOT could evaluate truck only facilities, upgrade rural highways, and construct grade separations at key intersections and railroad crossings. The use of new pavement technologies such as PCC, whitetopping, and full depth concrete can positively impact future maintenance needs by prolonging the life of the roadway network.

[10] *PCCP Intersections Design and Construction in Washington State.* Report No. WA-RD-503.1. May 2001.

4 Programmed Improvements

Introduction

Phase 1 of the Central Georgia Corridor Study was focused on developing a snapshot of and evaluating the socioeconomic and transportation infrastructure across the entire forty-five county study area. This work ultimately is focused on understanding potential transportation system gaps that directly affect the movement of freight and goods throughout the study area.

Throughout the entire study area, GDOT, counties, and towns have developed solutions to many of these potential transportation system gaps. Over 1,200 transportation projects have been identified and included in the GDOT Construction Work Program (CWP). The purpose of this section is to recognize those projects and begin to match potential transportation system deficiencies with elements in the CWP. In Phase 3 the study team will develop a prioritization plan and review several innovative funding sources for transportation improvements.

The study team is also specifically focusing on the HPC 6 corridor and a supporting system of roads. In Georgia, the specific High Priority Corridor 6 mainline roadway follows US 80 from the Alabama state line in Columbus, then along SR 22 and SR 96 to I-16, and along I-16 to Savannah.

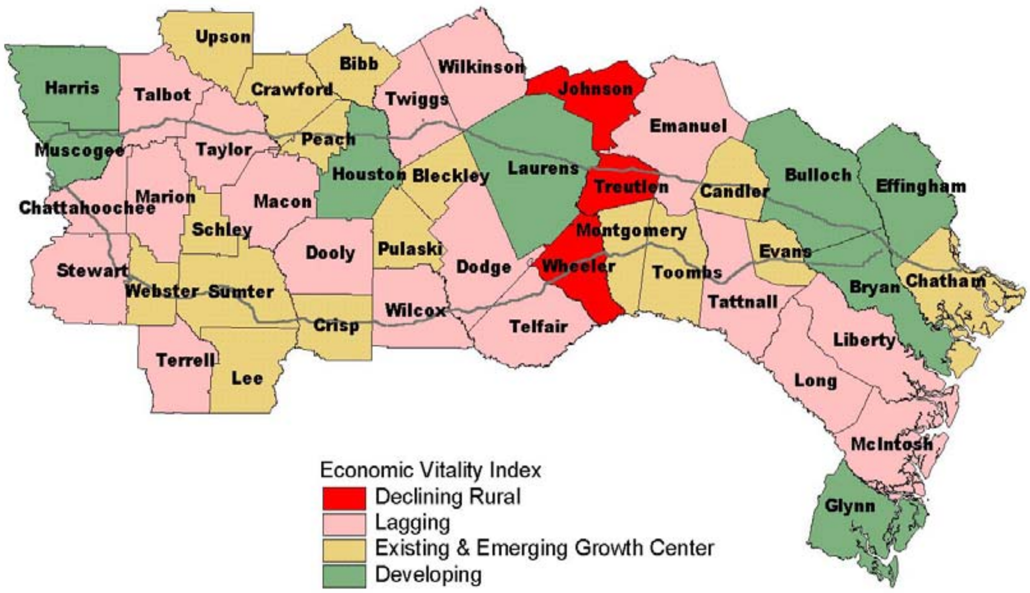
To support (and remain consistent with) the Georgia Rural Development Council's (GRDC's) economic development initiatives the study team identified a system of roadways that support the corridor and other state economic development initiatives. Specifically this addresses access to and from existing and emerging growth centers; access to and from all key military installations; and defines a logical and comprehensive "support" system for the HPC 6 corridor itself.

The following sections summarize and characterize the types of programmed projects within the study area and along the HPC 6 corridor. The projects are pulled directly from the GDOT CWP. The study team has summarized these and included specific detail in Appendix C of this report.

HPC 6 Mainline and Connecting Roads Definition

In the Phase 1 Study Report, a network of "connecting roads" was defined using information from the Georgia Rural Development Council. The study team evaluated the economies of the 45 counties in the study area, each county being in one of four categories of the GRDC's Economic Vitality Index.

Figure 4-1
Rural Development Council Economic Vitality Index



State routes connecting to cities and counties in the top two categories, "developing" or "existing & emerging growth center", were identified as a high priority and were designated as connecting roads for the purposes of this study. These are located in:

- Columbus
- Macon
- Warner Robins
- Perry
- Dublin
- Vidalia and Lyons
- Swainsboro
- Statesboro
- Savannah
- Americus
- Cordele
- Claxton

Criteria for selecting state routes in these areas were:

- North-south state routes connecting directly to either the HPC 6 mainline or the US 280 mainline.
- Roads with extremely low volumes, less than 2,000 vehicles per day, with no evident congestion or safety issues were not included.
- Roadway traverses through a "developing" or "exiting & emerging growth center".

The connecting roads to each regional economic center include:

Columbus:

1. I-185 from SR 18 in Harris County to US 280 in Muscogee County
2. SR 219 from SR 103 in Harris County to US 27/SR 1 in Muscogee County
3. US 27/SR 1 from SR 116 in Harris County to US 280/SR 520 in Muscogee County
4. US 280/SR 520 from US 27/SR in Muscogee County to Richland, Stewart County
5. US 27 Alt/SR 85 from SR 208 in Harris County to SR 219 in Muscogee County
6. SR 22 Spur from I-185 to US 80/SR 22

Butler:

1. US 19/SR 3 from SR 96 in Taylor County to SR 74 in Thomaston, Upson County

Reynolds:

1. SR 128 from SR 96 in Taylor County to US 341/SR 7 in Crawford County

Fort Valley:

1. SR 49C from SR 96 to SR 49
2. US 341/SR 7 from SR 49C in Peach County to SR 42 in Crawford County
3. US 341/SR 7 from SR 96 in Peach County to I-75 in Houston County

Macon:

1. I-75 from SR 96 to I-16
1. I-475from SR 74 to I-75
2. US 129/SR 247 to SR 247spur
3. I-16 from I-75 to SR 96

Warner Robins:

1. SR 247 from SR 96 to the northern Robins AFB gate

Perry:

1. I-75 from SR 96 to SR 127
2. SR 247/SR 247 Sp from SR 96 to US 341
3. SR 7 Sp/SR 224 from I-75 US 341/SR 7 to US 341/SR 11
4. US 41/SR 11 from SR 11C to SR 247C
5. US 341/SR 11 from SR 247 Sp to SR 26 in Pulaski County

Cochran:

1. US 129 Alt./SR 87 from SR 96 to SR 26
2. SR 26 from US 341/SR 27 in Pulaski County to US 80/SR 19 in Laurens County

Dublin:

1. US 441/US 319/SR 31 from SR 117 to SR 19
2. SR 19 from I-16 to US 441/SR 31
3. US 441/SR 29 from US 80/SR 19 to SR 338
4. SR 257 from SR 338 to US 441/US 319/SR 31
5. SR 19 from US 80 to south of I-16

6. US 319/SR 31 from US 80/SR 26 to Johnson County line
7. SR 338 from I-16 to US 80/SR 19
8. US 80/SR 19 from SR 26 (West of Dublin) to US 319/SR 31 (East of Dublin)

Vidalia and Lyons:
1. US 1/SR 4 from I-16 to Appling County line
2. SR 297 from US 280 to I-16
3. SR 15 from US 280/SR 30 to I-16
4. SR 135 from US 221 to US 280
5. SR 130 from SR 135 to US 280
6. SR 15/SR 29 from US 1 to US 280
7. SR 178 from SR 147 to US 1

Americus:
1 US 19/SR 3 from US 82/SR 520 to Schley/Taylor County Line
2. SR 195 from US 19/SR 3 in Leesburg to US 280/SR 30 in Leslie
3. SR 195 from US 19/SR 3 in Desoto to SR 49
4. SR 49 (NE) from Terrell/Sumter County line to Sumter/Macon County line
5. SR 377 from SR 195 to US 280/SR 30

Cordele:
1. I-75 from Dooly County line to Turner County line
2. US 41 from Dooly County line to Turner County line
3. SR 300 from Worth County line to SR 300 Connector
4. SR 300 Connector from SR 300 to US 280/SR 30
5. SR 90 from US 280/SR 30 to Wilcox County line

Swainsboro:
1. US 1/SR 17 from I-16 to US 80/SR 26

Metter:
1. SR 23 from I-16 to Emanuel County line
2. SR 23 from Tattnall County line to I-16
3. SR 129 from Tattnall County line to I-16

Statesboro:
1. US 25 from I-16 to Jenkins County line
2. SR 67 Bypass
3. US 301/SR 73 from US 25 to Screven County line
4. SR 24 from US 80/SR 26 to Screven County line
5. US 301Bypass/SR 73 Bypass
6. SR 67 from US 280/SR 30 in Bryan County to US 25

Claxton:
1. US 301/SR 73 from US 280/SR 30 to I-16
2. SR 129 from Tattnal/Candler County line through Claxton terminating at a county road.

Savannah:

1. I-16/SR 404 Sp from I-95 to SR 25 Alt (Bay Street),
2. SR 307 (Dean Forest Road) from I-16 to SR 25,
3. Chatham Parkway from I-16 to US 80/SR 26 then US 80 from Chatham Parkway to SR 25,
4. I-516 from SR 25 to intersection with Abercorn Street,
5. SR 21 from I-95 to SR 404 Sp,
6. SR 25 from SR 21 to South Carolina state line (Houlihan Bridge),
7. SR 21 Sp (Brampton Road) from SR 21 to Port of Savannah Gate 2,and
8. SR 25 Alt (Bay Street) from SR 404 Sp to East Port Terminal on President Street
9. SR 119 from I-16 to SR 21 in Effingham County
10. SR 21 SR 119 in Effingham County to I-95 in Chatham County
11. US 84/SR 38/SR 196 from I-95 to SR 119 in Liberty County
12. SR 119 from SR 196 in Liberty County to US 280/SR 30 in Bryan County

US 280:

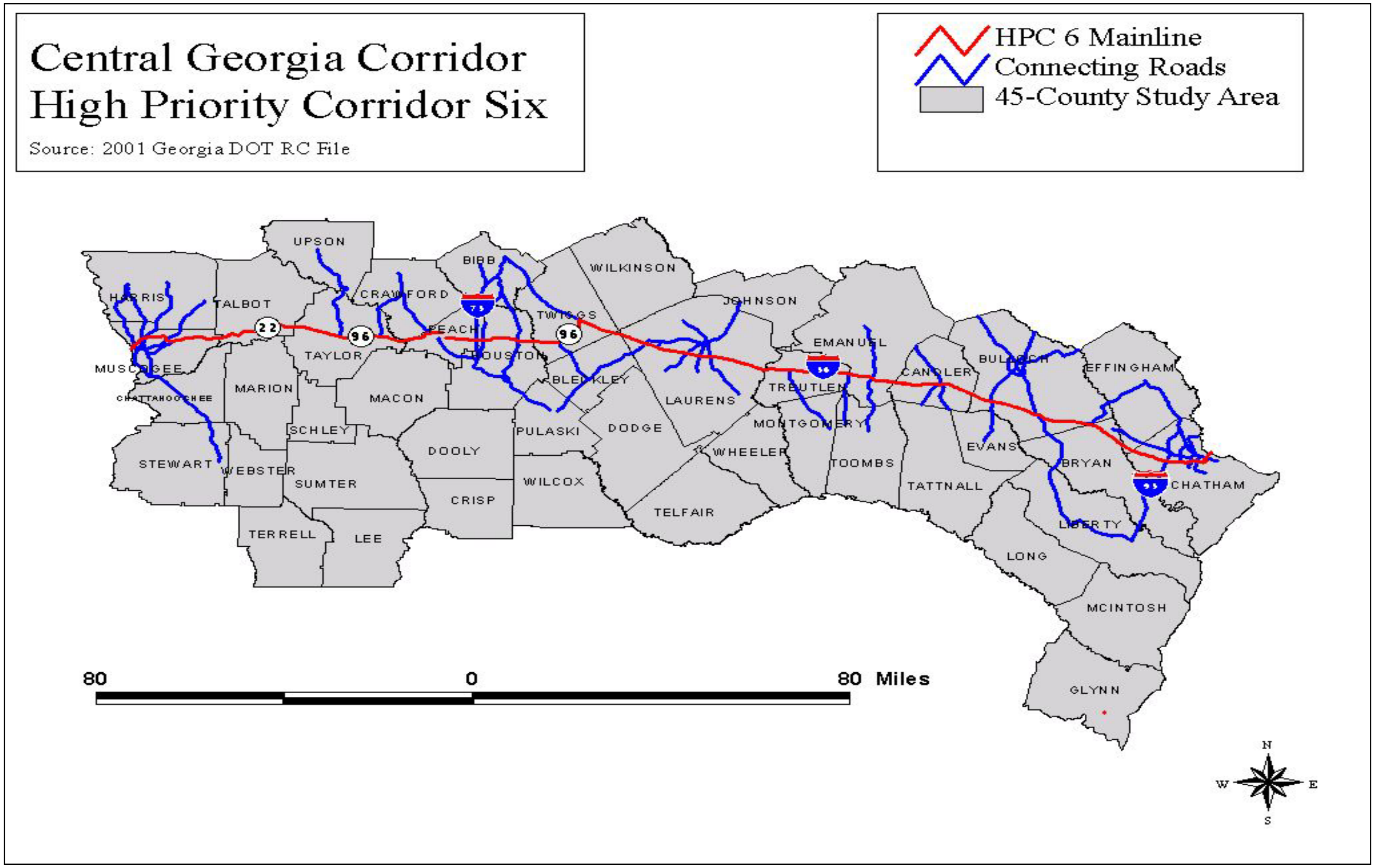
1. US 280/SR 27 from Plains (Sumter County) to Lumpkin
2. US 280/SR 30 through Vidalia and Lyons, beginning on the west of Vidalia at SR 15/SR 29 and ending one mile east of US 1

There are several military bases located in the Central Georgia Corridor and this study considers special transportation needs for these facilities. Military bases in the study area include:

- Fort Benning (Columbus) – *I-185 from US 80 to US 280*
- Robins Air Force Base (Warner Robins) – *SR 247 from SR 96 to north gate*
- Fort Stewart (Bryan and Liberty Counties) – *I-95 from I-16 to SR 196*
- Hunter Army Air Field (Savannah) – *I-516 from I-16 to intersection with Abercorn Street*

These bases are major employers and are extremely important to the local economies. Military bases have special logistical needs for mobilizing in the event of a war, stocking supplies, and intermodal connections to ports, rail lines, and airports. In addition, security is a major issue around these bases. Figure 4-2 below shows a map of the HPC 6 mainline and connecting road system.

Figure 4-2
HPC 6 Mainline and Connecting Road System



Programmed Roadway Projects in the Study Area

Regardless of the funding source, the GDOT Construction Work Program (CWP) identifies projects throughout the state for a six-year period. There are 541 projects identified in the CWP within the Central Georgia Corridor study area. Table 4-1 summarizes the project type and number of programmed projects with the study area. Obviously not all of these projects have been considered in this freight study.

Figure 4-3 shows all projects in the study area that are listed in the CWP as of the date Phase 2 was initiated. Figure 4-4 shows the extent of the Governor's Road Improvement Program.

Figure 4-5 shows the major programmed project types as a percentage by project type. Of the programmed projects in the study area, widening or bridge projects account for approximately 53 percent, while transit projects comprise 18 percent. There are seven GRIP routes that traverse through the study area and, over the next six to ten years, the GRIP system will be completed.

GRIP Projects Programmed in the Corridor

The Governor's Road Improvement Program (GRIP) began in 1989 with the mission to develop a network of four lane highways throughout the state and thus facilitate economic development. The completed GRIP system will provide 2,627 miles of four lane highways to 92 percent of towns with populations higher than 2,000, provide 113 miles of improved truck access, and place 75 percent of the state's population within two miles of a four-lane highway. The system will also provide direct connections between major cities not previously connected by a four-lane highway. The GRIP system will decrease vehicle travel time, stimulate economic development, improve safety, and save energy.

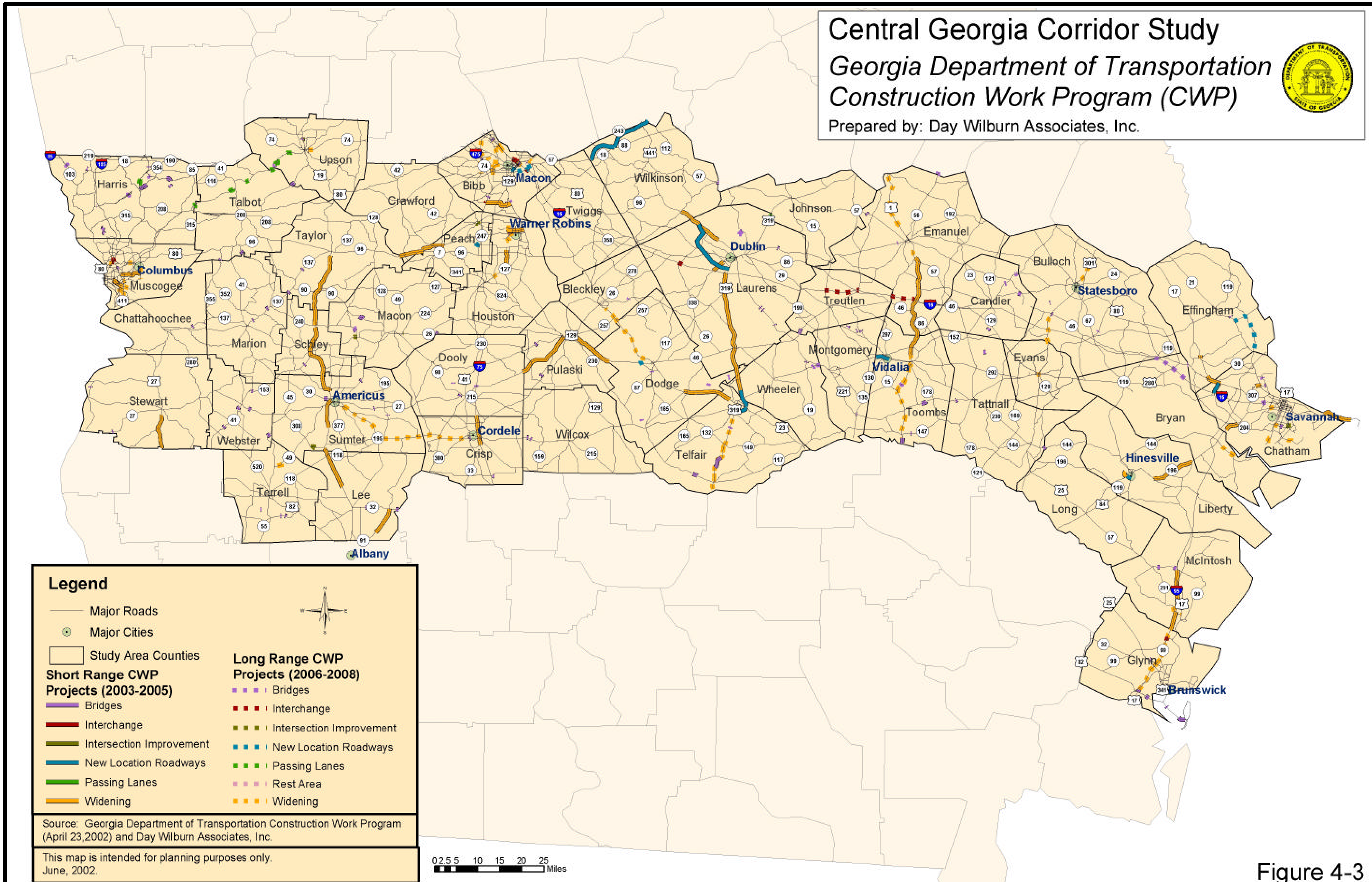
The GRIP typical section depends on the location of the roadway. In urban areas, the typical section includes four 12-foot travel lanes separated by a 20-foot raised median. In rural areas, the typical section includes four 12-foot travel lanes separated by a 44-foot depressed grass median and 2-foot paved inside shoulders and 4-6 foot paved outside shoulders. Portions of seven GRIP corridors traverse through the Central Georgia Corridor Study area.

US 27 (SR 1)
US 19 (SR 3)
Fall Line Freeway (SR 22/SR 96)
US 441 (SR 31)
US 1/SR 17
South Georgia Parkway (SR 520) – Corridor Z
Savannah River Parkway

Table 4-1
Project Type and Number of Programmed Projects within the Study Area

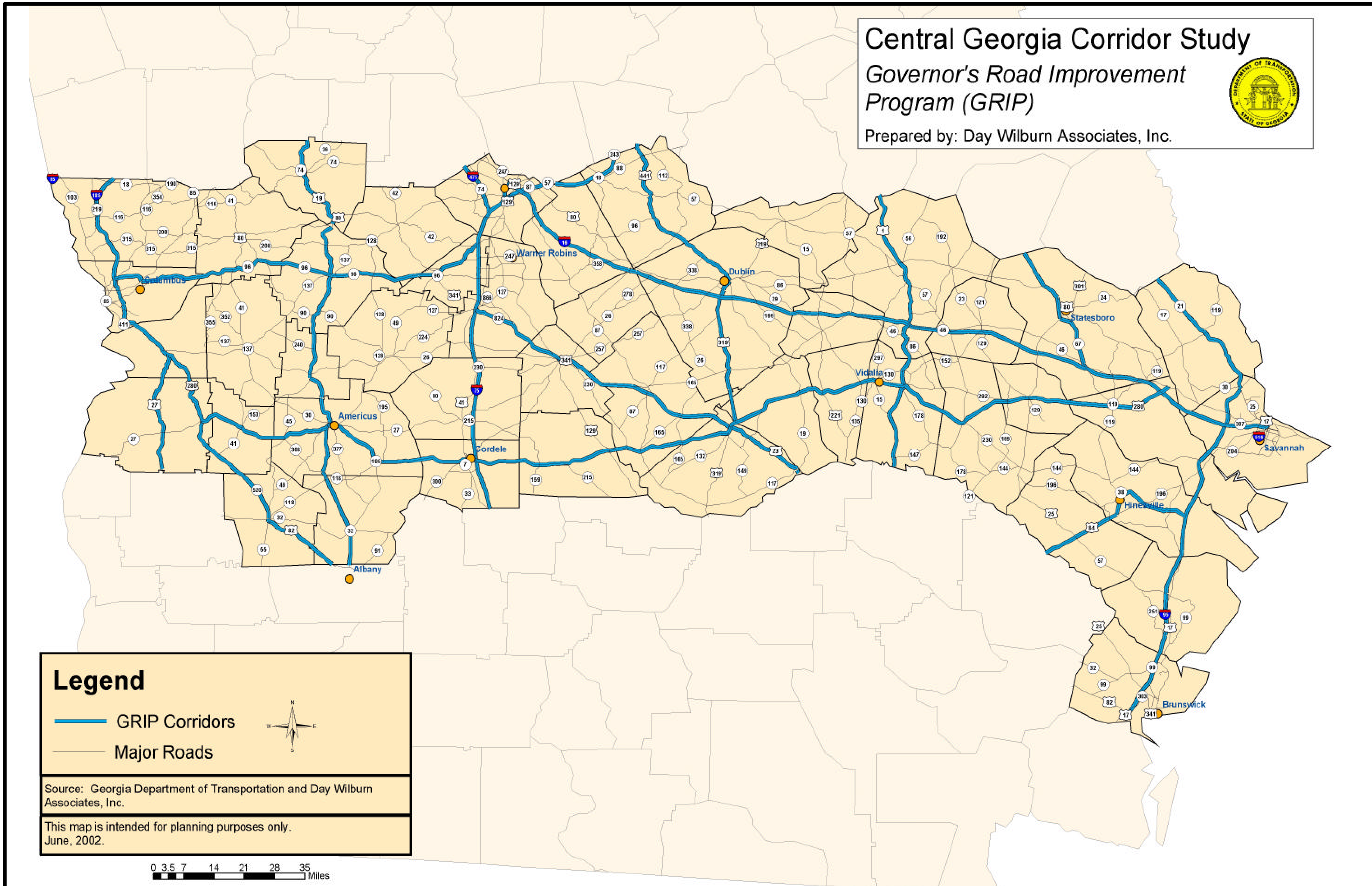
Project Type	Number
ATMS/ITS	8
Barriers	2
Bicycle/Pedestrian Facilities	4
Bridge Painting	5
Bridges	162
DMCA/Dike Work	4
Historic Preservation	2
Interchanges	13
Intersection Improvements	18
Landscaping	1
Lighting	1
Minor Widen & Resurfacing	6
Miscellaneous Improvements	8
Passing Lanes	19
Rail Projects	7
Railroad Crossing	4
Rest Area	3
Resurfacing & Maintenance	17
Rights-Of-Way	2
Roadway Projects	22
Sidewalks	1
Signals	2
Transit Projects	99
Turn Lanes	5
Water Pollution Mitigation	1
Widenings	124
Wildlife mortality mitigation	1
TOTAL	**541**

Source: 2002 Georgia Department of Transportation



Central Georgia Corridor Study
Georgia Department of Transportation
Construction Work Program (CWP)
Prepared by: Day Wilburn Associates, Inc.
Harris
Talbot
Upson
Crawford
Bibb
Macon
Twiggs
Warner Robins
Wilkinson
Johnson
Emanuel
Bulloch
Statesboro
Effingham
Columbus
Muscogee
Chattahoochee
Taylor
Peach
Houston
Bleckley
Dublin
Laurens
Treutlen
Candler
Marion
Schley
Dooly
Pulaski
Dodge
Montgomery
Vidalia
Evans
Stewart
Webster
Americus
Sumter
Cordele
Crisp
Wilcox
Wheeler
Toombs
Tattnall
Bryan
Savannah
Chatham
Telfair
Hinesville
Liberty
Long
Terrell
Lee
Albany
McIntosh
Glynn
Brunswick
Legend
Major Roads
Major Cities
Study Area Counties
Short Range CWP Projects (2003-2005)
Bridges
Interchange
Intersection Improvement
New Location Roadways
Passing Lanes
Widening
Long Range CWP Projects (2006-2008)
Bridges
Interchange
Intersection Improvement
New Location Roadways
Passing Lanes
Rest Area
Widening
Source: Georgia Department of Transportation Construction Work Program (April 23,2002) and Day Wilburn Associates, Inc.
This map is intended for planning purposes only.
June, 2002.
0 2.5 5 10 15 20 25 Miles

Figure 4-3


Central Georgia Corridor Study
Governor's Road Improvement Program (GRIP)
Prepared by: Day Wilburn Associates, Inc.
Columbus
Warner Robins
Dublin
Statesboro
Vidalia
Americus
Cordele
Savannah
Hinesville
Albany
Brunswick
Legend
GRIP Corridors
Major Roads
Source: Georgia Department of Transportation and Day Wilburn Associates, Inc.
This map is intended for planning purposes only.
June, 2002.
0 3.5 7 14 21 28 35 Miles

US 27/SR 1

The US 27/SR 1 GRIP corridor traverses the entire western length of the state beginning at the Florida State Line and continuing north through Bainbridge, Lumpkin, Columbus, Carrollton, and Rome, and terminating at the Tennessee State Line. Within the Central Georgia Corridor study area, the US 27/ SR 1 corridor traverses through Stewart, Chattahoochee, and Muscogee Counties. For the entire corridor, approximately 232 miles or 66 percent is open to traffic or under construction.

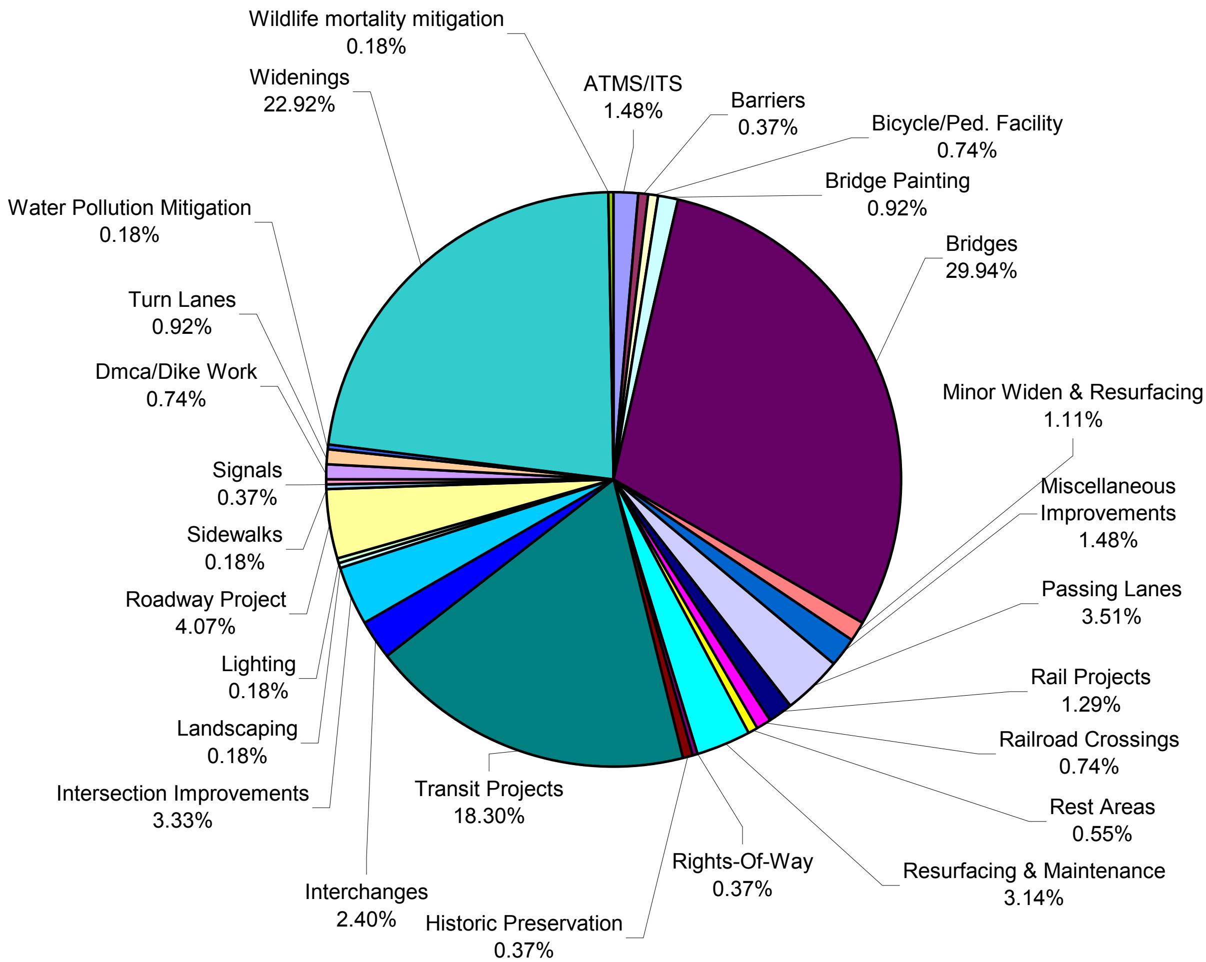
Within the Central Georgia Corridor study area, the 2.8 mile Lumpkin Bypass (EDS-27(144) is complete and open to traffic. The remaining uncompleted project, EDS-27(147), below Cusseta (SR 520/US 280) is an 8.8 mile section north of Louvale to SR 520. Construction is expected to be completed by April 2003 along this section of the corridor. The next 8.2 mile section of the corridor from the Lumpkin Bypass, including the Louvale Bypass, EDS-27(145) is complete and open to traffic. The corridor between Cusseta and I-85 in Troup County is open to traffic via SR 520/US 280 and I-185.

Environmental studies have begun on the section between I-85 and US 27/SR 1 north of LaGrange at CR 673 under project EDS-27(114) and NH-IM-85-1(160). There is a series of three projects EDS-27(122), HPP-EDS-27(123), and EDS-27(124) between CR 673 and the Roopville Bypass for which the environmental work is complete and the right of way is being acquired. Tables 4-2, 4-3, and 4-4 below reveal the status for projects along this corridor.

Table 4-2
Projects under construction on US 27/ SR 1

Projects Under Construction	Scheduled Completion date for Construction
In Chattahoochee County from County Road 43 north to US 280, the South Georgia Parkway, at Cusseta.	March 2003
Along SR 2 from the Chit-Chat Bypass to US 27 in the City of Oglethorpe in Walker County.	September 2001

Figure 4-5
Percentages of Programmed Projects by Project Type, 45-County Study Area



Source: 2002, Georgia Department of Transportation CWP

Table 4-3
Projects in Preliminary Engineering on US 27/ SR 1

Preliminary Engineering Environmental Phase	Scheduled Completion date for Environmental	Proposed Let Date
I-185 Interchange and the I-185 connector from I-185 to SR 1/US 27 south of Beech Creek in Troup County.	December 31, 2001	July 2004
Design Phase	**Scheduled Completion date for Design**	**Proposed Let Date**
I-185 Interchange and the I-185 connector from I-185 to SR 1/US 27 south of Beech Creek in Troup County.	October 1, 2000	July 2004

Table 4-4
Projects in Right of Way Acquisition on US 27/ SR 1

Right of Way Activities	Scheduled Completion date for Right of Way	Proposed Let Date
SR 1/US 27 from Luscious Queen Road to the Lumpkin Bypass in Stewart County.	May 2002	July 2002
SR 1/US 27 from north of Lagrange in Troup County to SR 54 near the Heard County line.	October 2002	Dec 2002
SR 1/US 27 from SR 54 in Troup County north along SR 1 with a bypass east of Franklin to Patterson Road north of Franklin in Heard County.	May 2002	July 2002

US 19/SR 3

This corridor traverses through Georgia from the Florida State Line near Thomasville and extends north to Albany and then to US 41 in Griffin in Spalding County. Within the Central Georgia Corridor study area, the US 19/ SR 3 corridor traverses through Sumter, Schley, Taylor and Upson Counties. The entire corridor is approximately 194 miles in length. Approximately 140 miles or 72 percent is open to traffic or under construction. Approximately 54 miles or 28 percent of the corridor is not currently under construction or open to traffic. Most of the 54-mile unimproved segment is in the study area.

Two projects, EDS-19(50) and EDS-19(51), between the Leesburg Bypass and US 280 south of Americus are currently being designed. The US 19/SR 3 corridor through Americus is complete and open to traffic. Four projects between Angelica Creek, north of Americus, and the Fall Line Freeway, south of Butler, are currently being designed. The four design projects designated for this segment of the corridor are HPP-EDS-19(55) Sumter, EDS-19(64) Schley, EDS-19(63) Schley and, EDS-19(65) Taylor. The corridor is complete and open to traffic between the Butler Bypass

(Fall Line Freeway) and US 41 near Griffin in Spalding County. Table 4-5 shows the phase schedule for projects along US 19/SR 3.

Table 4-5
Projects in Preliminary Engineering on US 19/SR 3

Preliminary Engineering Environmental Phase	Scheduled Completion date for Environmental	Proposed Let Date
From the Leesburg Bypass north to Americus in Sumter County.	December 31, 2001	FY 2003
Design Phase	**Scheduled Completion date for Design**	**Proposed Let Date**
From Smithville north 5.5 miles to Bear Branch Road.	No Report	FY 2003
From Bear Branch Road north to US 280 at Americus.	No Report	FY 2004
From Angelica Creek just north of Americus to SR 271 in Schley County.	January 2002	FY 2003
From SR 271 in Schley County to SR 240 north of Ellaville including a bypass of Ellaville.	No Report	FY 2004
From SR 240 north for 7.3 miles to Cooper Road in Taylor County.	No Report	FY 2004
From Cooper Road to the Butler Bypass.	No Report	FY 2005

Fall Line Freeway (SR 22/SR 96)

This corridor traverses the entire width of the state from the Alabama State Line at Columbus through Macon and then to Augusta terminating at the South Carolina State Line. Within the HPC 6 study area, this corridor traverses through Muscogee, Talbot, Taylor, Crawford, Peach, Bibb, and Wilkinson Counties. Part of this section from Columbus to Fort Valley runs common with HPC 6 along US 80 and SR 96.

The section from Columbus east to SR 96 at Geneva, Talbot County, located along US 80/SR 22, is open to traffic. The next section is located along SR 96; from SR 240 in Geneva eastward to about one-half mile east of Junction City, is open to traffic. Construction is underway between Junction City and Parks Road near the City of Butler in Taylor County and is expected to open to traffic in September 2002. State Route 96 is open to traffic between Parks Road and the Butler Bypass. Right of way is being acquired from the Butler Bypass eastward through the City of Reynolds to the Crawford County line. The section over Beechwood Swamp and the Flint River is open to traffic. From the Flint River to the Fort Valley Bypass (SR 49C) in Peach County, a project is in the right of way acquisition phase. Acquisition along this section is scheduled to be completed in April 2002, and construction is scheduled for FY 2003.

Project FLF-540(30), adds two additional lanes to the 4.9 mile long Fort Valley Bypass (SR 49C). A review of the US 341 intersection is underway to determine if a more efficient design may be crafted. The next 23.8 miles of the corridor along SR 49, are complete and open to traffic between SR 49C in Fort Valley and I-75 in Byron. HPC 6 continues eastward from Fort Valley on SR 96 while the Fall Line Freeway runs common with SR 49 to Byron and then turn north along I-75.

Tables 4-6, 4-7, and 4-8 provide a summary of the projects along HPC 6, which are common with the Fall Line Freeway.

Table 4-6
Projects under construction or Ready to Let on SR 22/SR 96

Projects Under Construction	**Scheduled Completion Date for Construction**
SR 96 from Junction City to CR 48 near the City of Butler in Taylor County.	September 2002
Projects Ready to Let	**Proposed Let Date**
SR 49C—Ft. Valley Bypass in Peach County from SR 96 to SR 49 (a letting depends on funding availability).	October 2002

Table 4-7
Projects in Preliminary Engineering on SR 22/SR 96

Preliminary Engineering Design Phase	**Scheduled Completion date for Design**	**Proposed Let Date**
SR 96 in Taylor County from the Butler Bypass to the Crawford County line--final plans.	February 2002	FY 2003
SR 96 in Crawford County from east of the Flint River to the Ft. Valley Bypass (SR 49C)—final plans.	August 2002	FY 2003

Table 4-8
Projects in Right of Way Activities on SR 22/SR 96

Right of Way Activities	**Scheduled Completion date for Right of Way**	**Proposed Let Date**
From the Butler Bypass to the Crawford County line.	December 2001	FY 2003
From east of the Flint River to the Ft. Valley Bypass SR (49C).	June 2002	FY 2003

US 441 (SR 31)

The US 441 corridor travels the length of the state from the Florida State Line to North Carolina. The corridor is a major north/south transportation artery in the eastern part of the state. Within the Central Georgia Corridor study area, the US 441/ SR 31 corridor passes through Telfair, Wheeler, Laurens, and Wilkinson Counties. For the entire corridor there are approximately 131 miles or 35 percent open to traffic. The entire corridor is approximately 371 miles in length and is the longest of the GRIP corridors.

The design concepts for projects EDS-441(37)(36) between SR 107 in Coffee County and CR 240 in Telfair County and between CR 240 and the South McRae Bypass are complete and environmental studies are currently underway. The alignment and environmental studies for the South EDS-441(12) and North EDS-441(13) McRae Bypasses to US 441/US 280/SR 30 intersections in Wheeler County are complete and the design work is underway. The environmental work for the projects from the North McRae Bypass to the I-16 interchange is nearly complete. Roadway design will begin in the near future for the section between the North McRae Bypass and SR 46 under project EDS-441(18).

The I-16 interchange with U.S. 441 is complete. North of I-16 the corridor is also complete to the intersection with Fire Tower Road. At this point, the corridor turns west and north on new location bypassing the City of Dublin. An alignment for the Dublin Bypass, EDS-441(5), has been established, environmental work has been completed and right of way plans are being prepared. Right of way is being acquired for project EDS-441(39), between the Dublin Bypass near CR 471 and SR 112. Project EDS-441(38) between SR 112 and SR 96 in Wilkinson County is ready to let. A roadway and a bridge project are currently under construction, between SR 96 and the Irwinton Bypass, project (EDS-441(52).

Tables 4-9, 4-10 and 4-11 provide a summary of the activities along the US 441 corridor in the Central Georgia Corridor study area.

Table 4-9
Projects under Construction or Ready to Let on US 441

Projects Under Construction	Scheduled Construction Completion
From the south terminus of the Irwinton Bypass north to the south end of the Milledgeville Bypass (three projects).	March 2002
In Wilkinson County from SR 96 to the south terminus of the Irwinton Bypass and a bridge project.	August 2001
Projects Ready To Let	**Proposed Let Date**
In Wilkinson County from SR 112 to SR 96 including the bridges.	January 2002

Table 4-10
Projects in Right of Way Activities on US 441

Right of Way Activities	Scheduled Completion date for Right of Way	Proposed Let Date
In Laurens and Wilkinson Counties from the north terminus of the Dublin Bypass north to SR 112.	September 2002	December 2002

Table 4-11
Projects in Preliminary Engineering on SR 22/SR 96

Preliminary Engineering Design Phase	Percent Complete	Scheduled Completion date for Design	Proposed Let Date
In Coffee and Telfair Counties, the replacement of bridges at Mill, Big Horse, & Big Horse Overflow Creeks.	85%	Nov. 2001	May 2002
Dublin Bypass in Laurens County.	50%	Dec. 2001	April 2003
Environmental Phase	**Percent Complete**	**Scheduled Completion date for Environmental**	**Proposed Let Date**
From north of the City of Douglas in Coffee County northward to the South McRae Bypass in Telfair County (five projects).	30%	December 2002	FY 2008
The South and North Bypasses of McRae in Telfair County.	100%	October 2001	FY 2004
Beginning at the North Bypass of McRae and continuing north through Wheeler and into Laurens County to I-16 (3 projects).	50%	March 2002	FY 2005

US 1/SR 17

This corridor travels the state from the Florida State Line at Folkston northbound to US 441 in Habersham County. Within the Central Georgia Corridor study area, this corridor traverses through Toombs and Emanuel Counties. The entire corridor is approximately 331 miles in length; construction of approximately 115 miles or 37 percent has been completed.

There are seven projects between Plant Hatch Road in Toombs County, north through Lyons to I-16 in Emanuel County. Environmental studies have begun on all seven projects. The early concept studies recommended the corridor improvements be made by widening US 1 from the southern city limits of Lyons north to Washington Street. Washington Street would become the southbound street and State Street/US 1 would become the northbound street of a one-way pair. The one-way pair would terminate in the vicinity of McBride Avenue and the route would continue along US 1 to the northern city limits.

Right of way acquisition is underway between I-16 and the Swainsboro Bypass under project EDS-545(44) and is expected to be completed by September 2002. The north and south sections of the Swainsboro Bypass are currently under construction within projects EDS-545(7) and EDS-545(8). These projects are scheduled to be completed and open to traffic by December 2002.

The north and south bypasses west of Swainsboro are currently under construction and the scheduled completion date is December 2002. Table 4-12 reveals the status for projects along this corridor.

Table 4-12
Projects in Preliminary Engineering on US 1/SR 17

Preliminary Engineering Environmental Phase	Scheduled Completion date for Design	Proposed Let Date
Beginning in Appling County and extending north through Toombs County including the widening through Lyons and into Emanuel County to I-16 (9 projects).	March 2002	FY 2004 & 2005
From the north terminus of the Swainsboro Bypass to the existing four lanes at Wadley in Jefferson Co. (2 projects).	September 2002	FY 2007
Design Phase	**Scheduled Completion date for Right of Way**	**Proposed Let Date**
From the Appling/ Bacon County line north to SR 56 in Toombs County (4 projects).	No Report	FY 2005
From SR 56 in Toombs County north through the City of Lyons in Toombs County.	No Report	FY 2006
From the north city limits of Lyons to I-16 (3 projects).	No Report	FY 2004
From I-16 north to the Swainsboro Bypass at SR 297.	July 2001	FY 2003
From north terminus of the Swainsboro Bypass to the Wadley Bypass (2 projects).	No Report	FY 2006

South Georgia Parkway – SR 520 – Corridor Z

The South Georgia Parkway was completed in 1989 and consisted primarily of widening existing two-lane roads to either four-lane divided or four-lanes with a middle left-turn lane. However, part of the highway that bypasses downtown Albany is interstate quality.

The South Georgia Parkway, or commonly called Corridor Z, begins at the Alabama state line (US 280) in Columbus, following US 27/280/SR1 from there to Cusseta (12 miles SE of Columbus), where US 280/SR 520 splits toward Richland, in eastern Stewart County. East of Richland, US 280 and SR 520 part, and Corridor Z proceeds south of the Central Georgia Corridor.

Bridges Programmed for Upgrade or Replacement

Many of the bridges on HPC 6 mainline and connecting routes are programmed for upgrade or replacement. The CWP provides a listing of all bridge projects in the study area to be funded in the six years.

Figure 4-6
Programmed Bridges along the HPC 6 Mainline and Connecting Roads

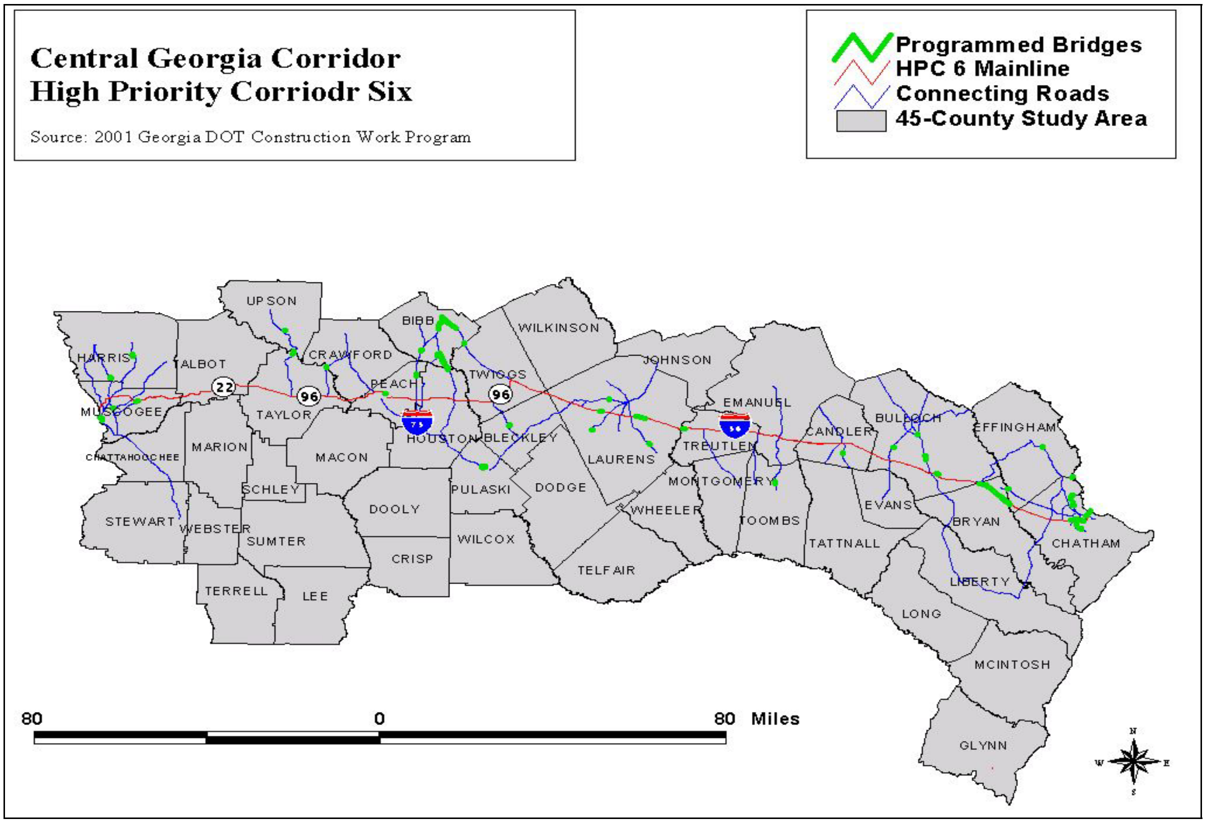


Figure 4-6 above shows the bridges that are programmed in the CWP on the mainline and connecting roads. The GDOT has identified 12 bridges on the HPC 6 mainline and 19 bridges on the connecting roads to be replaced or upgraded. Appendix C provides the details of each bridge project in the CWP by county.

Railroad Grade Crossings Programmed for Upgrades

There are 50 railroad grade crossing projects identified in the CWP in the Central Georgia Corridor study area. Railroad crossing improvements are selected at crossings with high ranking accident potential and at selected crossings along rail line corridors. The GDOT's Traffic Operations Office selects, prioritizes, and develops all improvements to railroad crossings in the state. The majority of programmed projects in the CWP consist of the installation of active warning devices such as gates, lights, and bells. However, there are a few special projects that upgrade circuits, lenses, signs, and pavement markings.

The GDOT and the Federal Railroad Administration (FRA) provided the railroad inventory data. The data was analyzed to identify deficient railroad crossings along the HPC 6 mainline and connecting roads. Appendix C provides the details of each railroad crossing project in the CWP by county.

ITS Projects in the Construction Work Program (CWP)

Intelligent Transportation System projects in the Construction Work Program in the Central Georgia Corridor study area consist of Advanced Traffic Management Systems (ATMS) in Columbus, Macon, and Savannah and weather monitoring systems in Glynn County along the coast.

The ATMS being designed by the GDOT for the City of Savannah includes the development of a concept plan, design of fiber optic trunk lines, communications links, location of field devices, and other related infrastructure features. The scope includes preparation of plans, specifications, and estimates for 20 miles of fiber optic cable backbone, branch lines to devices that will either be fiber optic cable or twisted pair copper cable, three variable message signs (VMS), a Highway Advisory Radio (HAR) site, and six video surveillance cameras.

The consultant team developing Savannah's ATMS will integrate the Atlanta ATMS control software and tailor it for use by the Savannah Traffic Engineering Department. The project team will also provide a design for a traffic control center, plans for upgrading traffic signals at 13 intersections, signal timing plans for 52 intersections in four major corridors, and construction supervision and inspection. [1]

The GDOT has similar plans to open an ATMS system for the Cities of Columbus and Macon. The City of Warner Robbins would also benefit by having a small ATMS system installed.

In Columbus/Muscogee County, two ATMS projects are programmed for FY 2002:

- Slow Scan/VMS/Radar
- Regional Traffic Control Center (TCC)

Six ATMS projects are programmed in Macon/Bibb County, consisting of installing variable message signs on interstate highways and maintenance for each year 2002-2005.

In Savannah/Chatham County, five projects are programmed:

- Regional Traffic Control Center (TCC) in 2005
- Slow Scan/VMS/Radar in 2007
- I-16 and I-516 Communication and Surveillance in Long Range
- Weather Monitoring Station – no year designated

[1] http://www.dot.state.ga.us/homeoffs/dttsdrr.www/savannah.html

In Glynn County, two projects are programmed: an I-95 fog detection system in 2001 and a weather monitoring system – no year designated. Appendix C provides the details of each ITS project in the CWP by county.

Truck Weigh Station Projects in the CWP

Two pairs of truck weigh stations are being renovated and upgraded: a pair on I-16 in Bryan County, and a pair on I-95 in McIntosh County.

Let to construction in FY 1999, the Bryan County weigh station buildings were renovated. The static scales and weigh-in-motion scales were replaced and automatic vehicle identification equipment and management software was added, capable of electronic screening for the Port of Savannah.

Let to construction in FY 2000, both McIntosh County weigh station buildings were replaced. The static scales and weigh-in-motion scales were replaced and automatic vehicle identification equipment and management software capable of electronic screening for the Port of Savannah was added. Appendix C provides the details for each truck weigh station project in the CWP by county.

Rest Area Projects in the CWP

Reconstruction of the I-95 Southbound Welcome Center in Chatham County is programmed for FY 2006.

Summary

There are 541 projects identified in the GDOT's CWP within the Central Georgia Corridor study area. Approximately 50 percent of the programmed projects in the study area are either road widening or bridge projects. Resurfacing and maintenance projects comprise ten percent and railroad crossing upgrades provide five percent for programmed projects. There are seven GRIP routes that traverse through the study area and over the next six to ten years the GRIP system will be completed. Implementation of the GRIP system will upgrade numerous mainline and connecting roads in the Central Georgia Corridor. During the next six years, the GDOT will improve 50 Railroad grade crossings in the Central Georgia Corridor study area. Intelligent Transportation Systems will apply state of the art technology to existing transportation systems. Implementation of the ATMS projects in Columbus, Macon, and Savannah and weather monitoring systems in Glynn County will allow trucks to operate more efficiently providing a competitive advantage to the State of Georgia. Projects identified in the CWP address crucial transportation needs and many of these projects will eliminate deficiencies throughout the Central Georgia Corridor.

5 System Deficiencies and Potential Solutions

Introduction

Phase 1 of the Central Georgia Corridor Study included the collection and analysis of data from many sources. Transportation system inventory and associated data have been organized into a GIS-based system that links databases documenting freight and non-freight traffic volumes, capacity of roadways, volume to capacity ratios (v/c), accident data, stakeholder interview data, the results of interviews with stakeholders (perceived deficiencies), commodity flow data, historic resource and wetland data, freight carriers, major shippers, and land use. The current and forecasted data is expressed in the Phase 2 Report for the years 1998 and 2025.

The Phase 1 data, the manipulation of this data, and the resultant GIS themes and queries were used to conduct an initial screening of deficient system elements and to complete a detailed assessment of all capacity, operational, and safety deficiencies. The definition of deficiency in the context of this report entails "*physical and operational constraints to freight movement and any constraint in the overall reliability of the transportation system*". This includes intermodal freight movement deficiencies such as connectivity to and between roads, ports, airports, and rail facilities.

The Central Georgia Corridor Study began during Phase 1 in a broad, systematic way, reviewing data for the identified forty-five county area. While aspects of the study continue to include all counties, the focus of Phase 2 has been narrowed in some areas to the High Priority Corridor Six (HPC6) and specific areas of U.S. 280.

The identification of transportation deficiencies is not synonymous with identifying transportation solutions. Phase 3 of the study will provide transportation solutions to enhance freight movement and trade. In this chapter, however, there are the beginnings of ideas relating to possible solutions to deficiencies.

Organizing Principles

In analyzing the data, three major organizing principles for the material became obvious. Transportation deficiencies may be related to: (1) reliability of the system, including cost and speed of freight delivery; (2) Economic stability and growth in the study corridor; and (3) system safety and maintenance. These three principles for the purpose of discussing transportation deficiencies are addressed more fully on the following pages.

Relationship of the Transportation System to Cost and Speed of Freight Delivery – including Reliability of the System

Cost and speed of freight delivery are affected by many things, among them proximity to four-lane roadways or interstates, intermodal connection efficiency, congestion, and bottlenecks on road and railways. In addition, efficiency of the haulers, shippers and receivers, fuel prices, and the cost of labor can affect the cost of freight delivery.

Manufacturers who create goods that are not location dependent choose rural counties if the transportation infrastructure is sufficient and a relatively inexpensive, skilled labor force is available in the area. Manufacturers and businesses that *are* location dependent, such as agriculture, forest products, and mining have the same requirements, without which competitors may prevail with lower market prices.

The transportation system that serves these location and non-location dependent businesses has a direct relationship to the cost and speed of freight delivery. Congestion, inadequate road and rail bridges, bottlenecks, narrow, winding roads and bridges, and poorly designed and operated intermodal freight connections can slow the delivery of freight to markets, decrease the competitiveness of Georgia products and thus slow trade with other states and countries.

The overall reliability of the transportation system is important to trade and is of special importance to our country in times of national emergency. Georgia is home to ten military bases, four of which are located in the project corridor, that are connected to each other and the rest of the country via the Strategic Highway Network, or STRAHNET. In addition, the connection between the bases and the Georgia ports, especially the Port of Savannah are critical in times of overseas deployment. As a part of this study the STRAHNET connections have also been reviewed and analyzed with respect to overall reliability.

Relationship of the Transportation System to Economic Stability and Growth

In 1998 the Georgia Department of Transportation (GDOT) contracted with Dr. Douglas Bachtel of the University of Georgia to provide an analysis of the Governor's Road Improvement Program (GRIP) as it relates to the economy of selected Georgia Counties. The report can be found on the GDOT Office of Planning web site. As a part of Dr. Bachtel's work, he provided a substantial discussion of studies that have demonstrated the link between the quality of the transportation system and economic stability and growth. The report contains numerous citations of the correlation between growth, economic stability, and the transportation system.

However, transportation alone is not responsible for economic development. Many other factors play an important role, such as increased educational and vocational training and job readiness skills. Equally important is the cooperation between state and local governmental officials and the private sector. However without an effective and efficient transportation system, economic development will not occur. Businesses cannot afford to locate where they cannot either ship or receive their goods efficiently.

The North American Free Trade Agreement (NAFTA) and the General Agreement on Tariffs and Trade (GATT) has opened more of the world's markets to American goods and the two treaties have also unlocked American markets to more foreign-made products. The Central Georgia Corridor is positioned to direct goods westward more efficiently from Central Georgia, and the Port of Savannah, than any other facility.

The following quote from Dr. Bachtel's GDOT GRIP report correlates with the work of the Georgia Rural Development Council (GRDC) discussed in the Phase 1 report:

> The importance of highways and economic development also has been linked to the growth center concept, which has played a major part in the regional development strategies of many countries, including the United States. The rationale for a growth center strategy rests heavily on the observation that the distribution of economic activity often provides firms with collective benefits that they would not receive in isolated locations. These take the form of external economies of agglomeration, as distinguished from the internal economies that a firm may generate from the expansion of its own organization (Kuklinski, 1972). It has been argued that lagging regions can be most efficiently developed by concentrating public and private investment in a few growth centers, and the "increased effects" from induced-growth centers will eventually bring greater prosperity to the surrounding hinterland areas (Hansen, 1972 and Munnell, 1990).

The Governor's Road Improvement Program (GRIP) was initiated in 1989 by state legislation. GRIP is a network of developmental four-lane highways and roads. The goal set for the program is to place 98 percent of the state within 20 miles of a four-lane road.

In 2001, with two-thirds of the approximately 150 road projects in the GRIP complete or under construction, the Governor initiated his Transportation Choices Initiative (GTCI). A portion of this plan would greatly accelerate completion of the GRIP program, which otherwise would have taken another 20 years to complete. In completing this system sooner, the economic impact will be felt sooner. Dr. Bachtel's work was quoted as crediting GRIP with "the creation of 15,000 jobs and an economic impact of $300 million".

In addition, stakeholders from across Central Georgia and the Georgia Department of Industry, Trade and Tourism, have related anecdotes concerning the questions asked by industries and businesses searching for new locations. Usually one of the first two questions asked is if there is a four-lane road in the community that connects to an interstate highway. Economic growth cannot be expected in an area without a well-connected transportation system.

Relationship of the Transportation System to System Safety and Maintenance

Safety and maintenance cover a host of subjects and are integral to the GDOT mission: the commitment to a "safe, efficient and sustainable transportation system". Safety and maintenance also relate to freight movement and trade in that the provision of an "adequate" transportation system is required for all the reasons given in the sections above. An inadequate transportation system includes poor pavement, narrow road and bridge width, poor sight distance, frequent bottlenecks, frequent at-grade railroad crossings, poor connectivity, and weight restricted bridges or trestles.

Safety deficiencies cause lower speeds, causing increased freight delivery time and increased costs. Safety deficiencies also result in accidents and concomitant increases in insurance costs, which lead to increases in the cost of shipping and therefore goods. Cost increases on a large-scale decrease the competitiveness of the region.

Maintenance issues affecting freight movement require constant attention to pavement, shoulders, bridges, rails, and trestles – any part of the transportation infrastructure. Large trucks carry many tons in weight. By identifying the major freight carrying routes in Phase 1, attention can be given to maintenance problems primarily on these routes.

Methods for Determining Transportation System Deficiencies

There were several methods used to determine current and future transportation system deficiencies. These are described below.

1. Congestion/Capacity Analysis

Using Highway Performance Monitoring System (HPMS) data for study area roadways, average capacities per lane were calculated by roadway functional class. The calculated capacities were applied to each highway segment to estimate a level-of-service by dividing each road segment's traffic count by the estimated capacity for that segment (volume/capacity or v/c ratio). This methodology resulted in the definition of congested areas, those areas with a v/c ratio > 0.7, for the existing and future transportation system as explained Chapter 2 of this document.

2. Accident Data

The Georgia Department of Transportation database was utilized as a source for high accident locations in the Central Georgia Corridor. The 1998 data, the most recent available, is useful in determining possible bottlenecks to freight movement. In order to be considered a freight bottleneck area for the purposes of this study, the roadway segment must carry at least the study area average percentage of truck volumes; have a v/c ratio greater than 0.7; and have a number of accidents greater than twice the statewide average. The resulting data has been further discussed with GDOT district personnel to determine if each bottleneck still exists or has been corrected during the intervening years.

3. Travel Time Data
Along U.S. 280 a travel time study was undertaken as a means of identifying transportation system deficiencies (Appendix J). Given the rural nature of this corridor and the abundance of smaller towns, this methodology was found to be an ideal supplement to other methods.

4. Interview Data
Interviews were held with shippers, receivers, and carriers during Phase 1 of the Central Georgia Corridor Study. Other stakeholders, among them the Port of Savannah, metropolitan planning organizations, regional development centers, and chambers of commerce also provided information on areas with congestion, accidents, heavy truck traffic, and bottlenecks. These "perceived deficiencies" are considered valid and have been mapped for comparison to other methods of determining deficiencies.

5. Economic Development Support System
The Georgia Rural Development Council work described in detail in the Phase 1 report identified certain cities in the Central Georgia Corridor as economic engines. The recommendation made by the GRDC was to expend transportation dollars improving transportation facilities from counties with a lagging or declining economy into these cities as a means of economic development. The transportation deficiencies maps indicate facilities that, with improvement, would support economic development in the way the GRDC proposed.

6. Best Practices
Existing corridor conditions were compared to best practices to determine transportation deficiencies. Best practices were examined in the areas of roadway shoulders, bridges, intersection treatments, roadway materials, and railroad/roadway intersections. Locations not currently utilizing best practices, but could benefit from use of a best practice, were identified as deficient.

7. Field Observations
Along the SR 96 corridor, between Columbus and I-16, a formal travel time study was not undertaken. However, field observation data was noted and confirmed the existing deficiencies as depicted by the current volume to capacity ratio.

Geographic Information Systems Maps

Transportation deficiencies in the Central Georgia Corridor are mapped by "region" for convenience (Figures 5-1 through 5-6 and Tables 5-1 through 5-6). The selected six regions are based on proximity of counties to one another and to logical stakeholder involvement venues. Each transportation deficiency map contains several counties and is followed by an alphabetical listing by county of transportation deficiencies. The map and the county list are united by a code number so that each deficiency and the source of the information can be located both on the list and on the map.

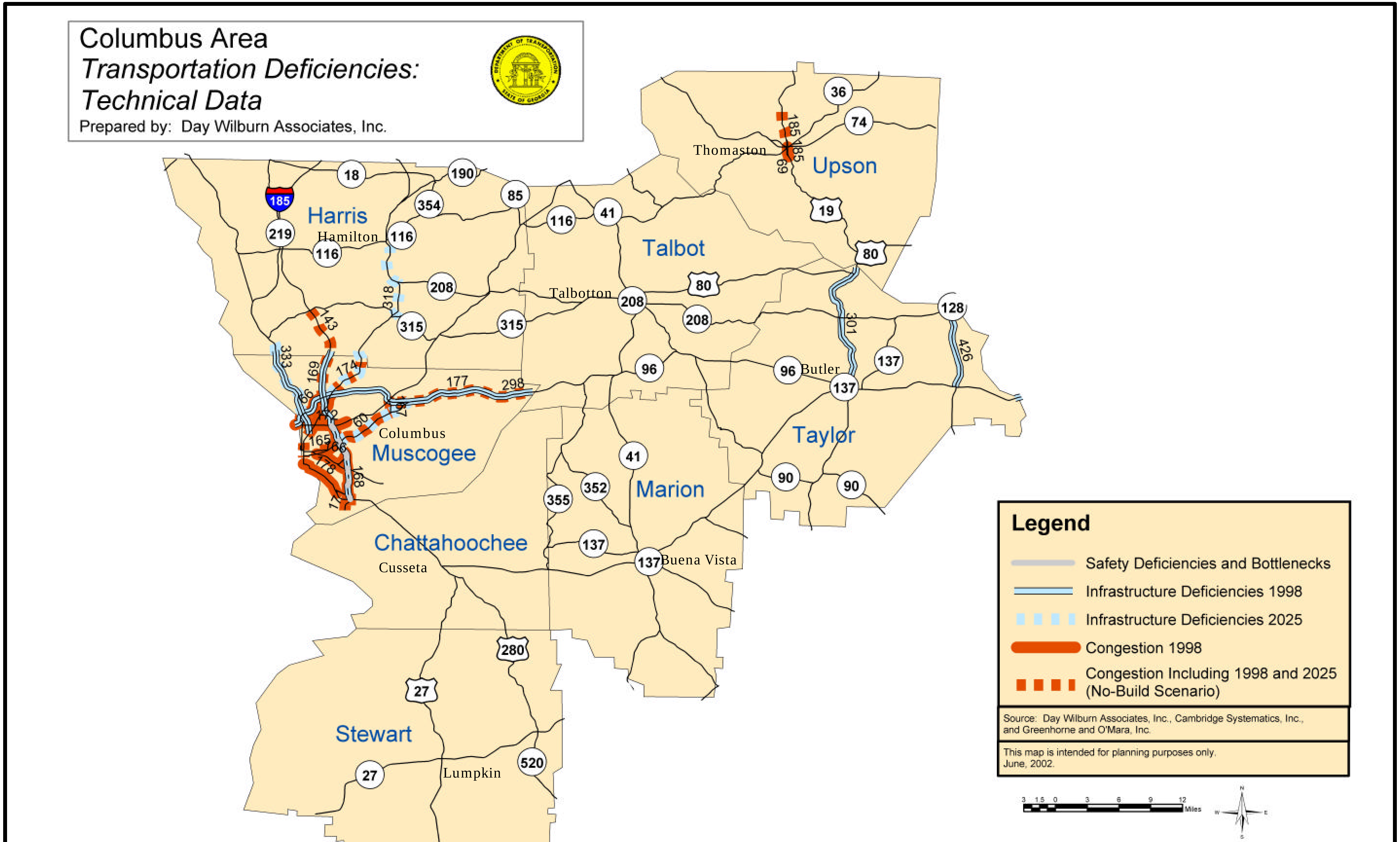

Columbus Area
Transportation Deficiencies:
Technical Data
Prepared by: Day Wilburn Associates, Inc.
Harris
Hamilton
Talbot
Talbotton
Upson
Thomaston
Taylor
Butler
Muscogee
Columbus
Marion
Buena Vista
Chattahoochee
Cusseta
Stewart
Lumpkin
Legend
Safety Deficiencies and Bottlenecks
Infrastructure Deficiencies 1998
Infrastructure Deficiencies 2025
Congestion 1998
Congestion Including 1998 and 2025
(No-Build Scenario)
Source: Day Wilburn Associates, Inc., Cambridge Systematics, Inc.,
and Greenhorne and O'Mara, Inc.
This map is intended for planning purposes only.
June, 2002.
Miles

Figure 5-1A

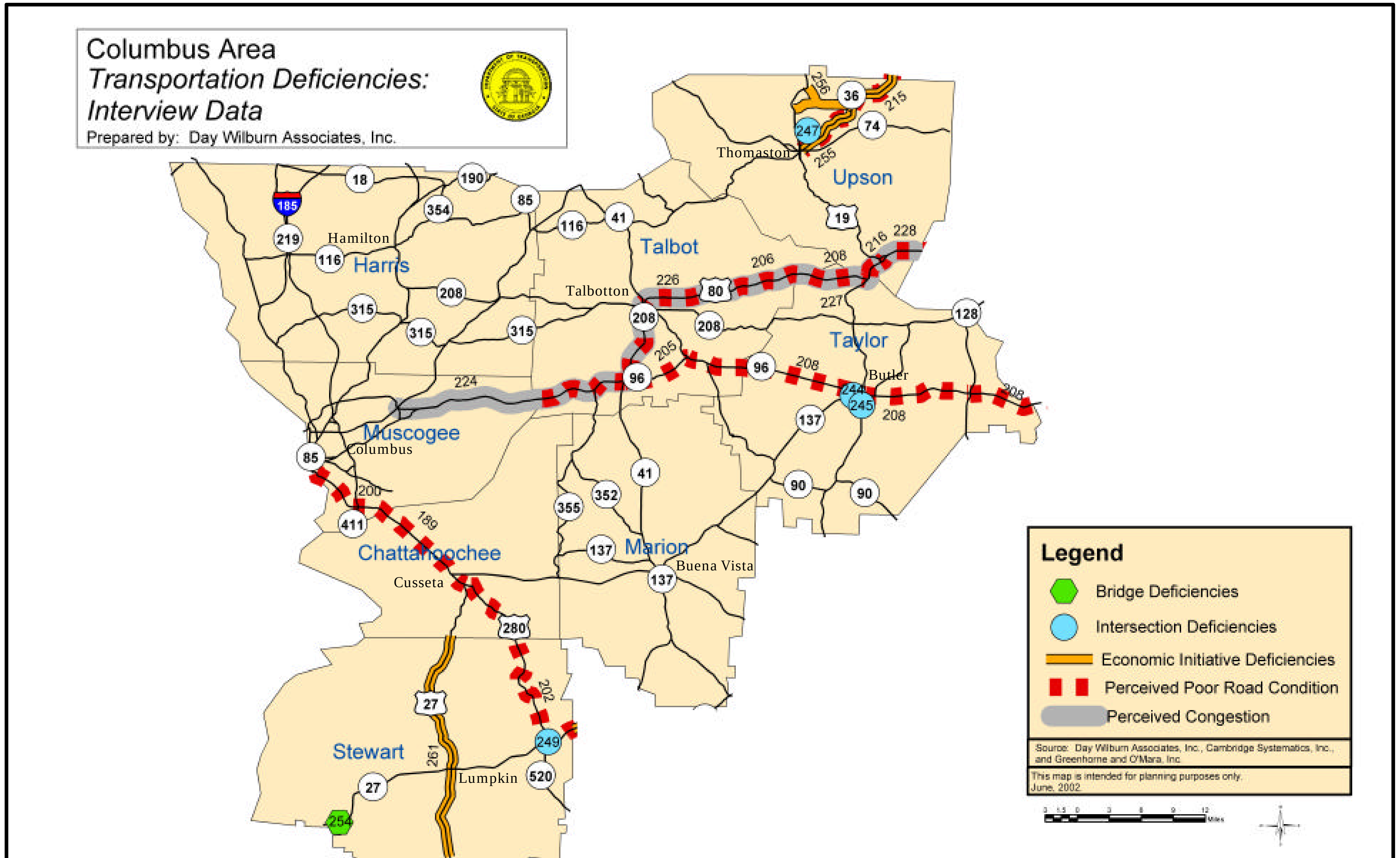
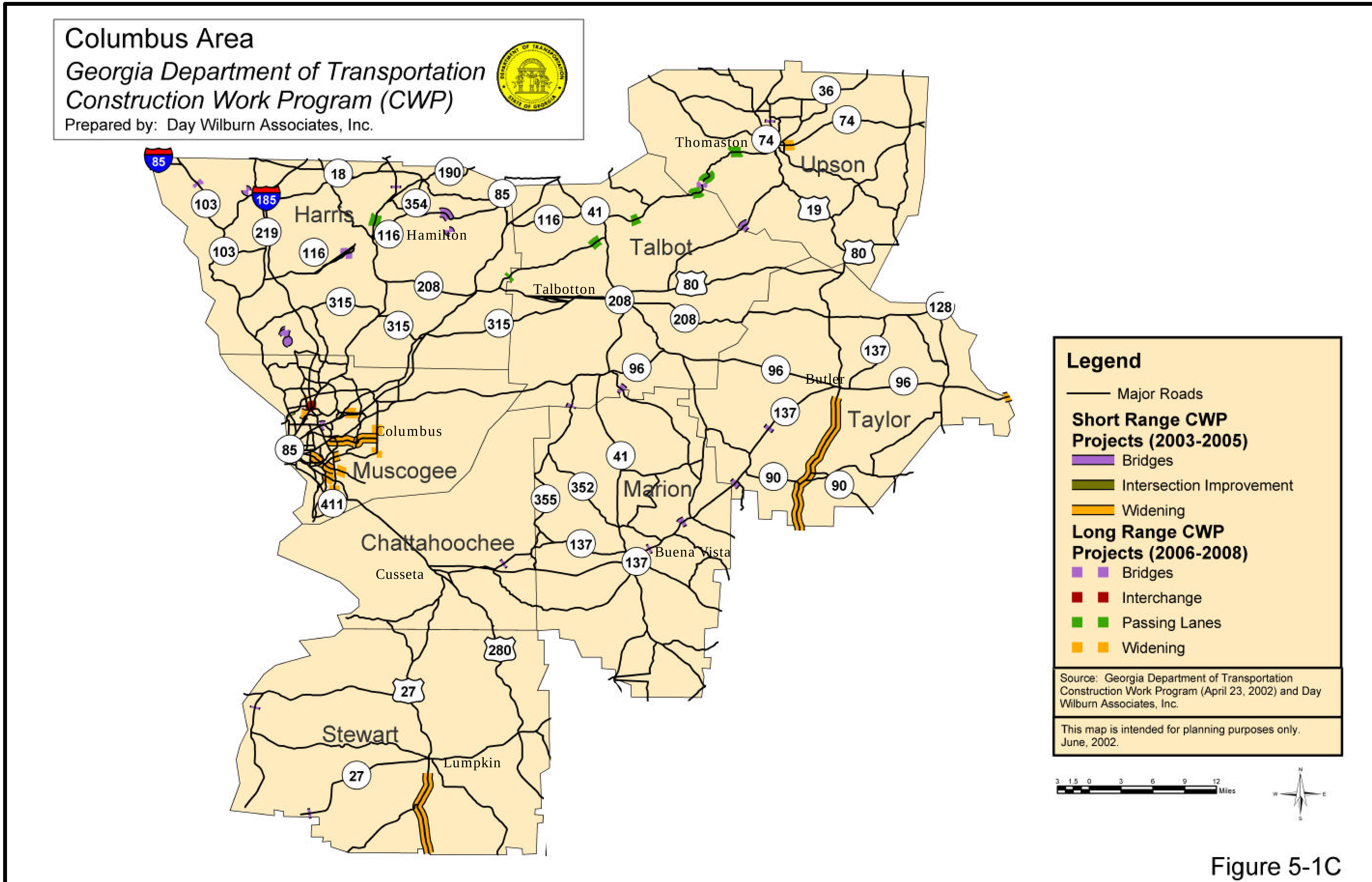

Columbus Area
Transportation Deficiencies:
Interview Data
Prepared by: Day Wilburn Associates, Inc.
Harris
Talbot
Upson
Taylor
Muscogee
Marion
Chattahoochee
Stewart
Hamilton
Talbotton
Thomaston
Butler
Columbus
Buena Vista
Cusseta
Lumpkin
Legend
Bridge Deficiencies
Intersection Deficiencies
Economic Initiative Deficiencies
Perceived Poor Road Condition
Perceived Congestion
Source: Day Wilburn Associates, Inc., Cambridge Systematics, Inc., and Greenhorne and O'Mara, Inc.
This map is intended for planning purposes only.
June, 2002.

Figure 5-1B



Columbus Area
Georgia Department of Transportation
Construction Work Program (CWP)
Prepared by: Day Wilburn Associates, Inc.
Harris
Hamilton
Talbot
Talbotton
Upson
Thomaston
Taylor
Butler
Muscogee
Columbus
Marion
Buena Vista
Chattahoochee
Cusseta
Stewart
Lumpkin
Legend
Major Roads
Short Range CWP Projects (2003-2005)
Bridges
Intersection Improvement
Widening
Long Range CWP Projects (2006-2008)
Bridges
Interchange
Passing Lanes
Widening
Source: Georgia Department of Transportation Construction Work Program (April 23, 2002) and Day Wilburn Associates, Inc.
This map is intended for planning purposes only. June, 2002.
Miles

Figure 5-1C

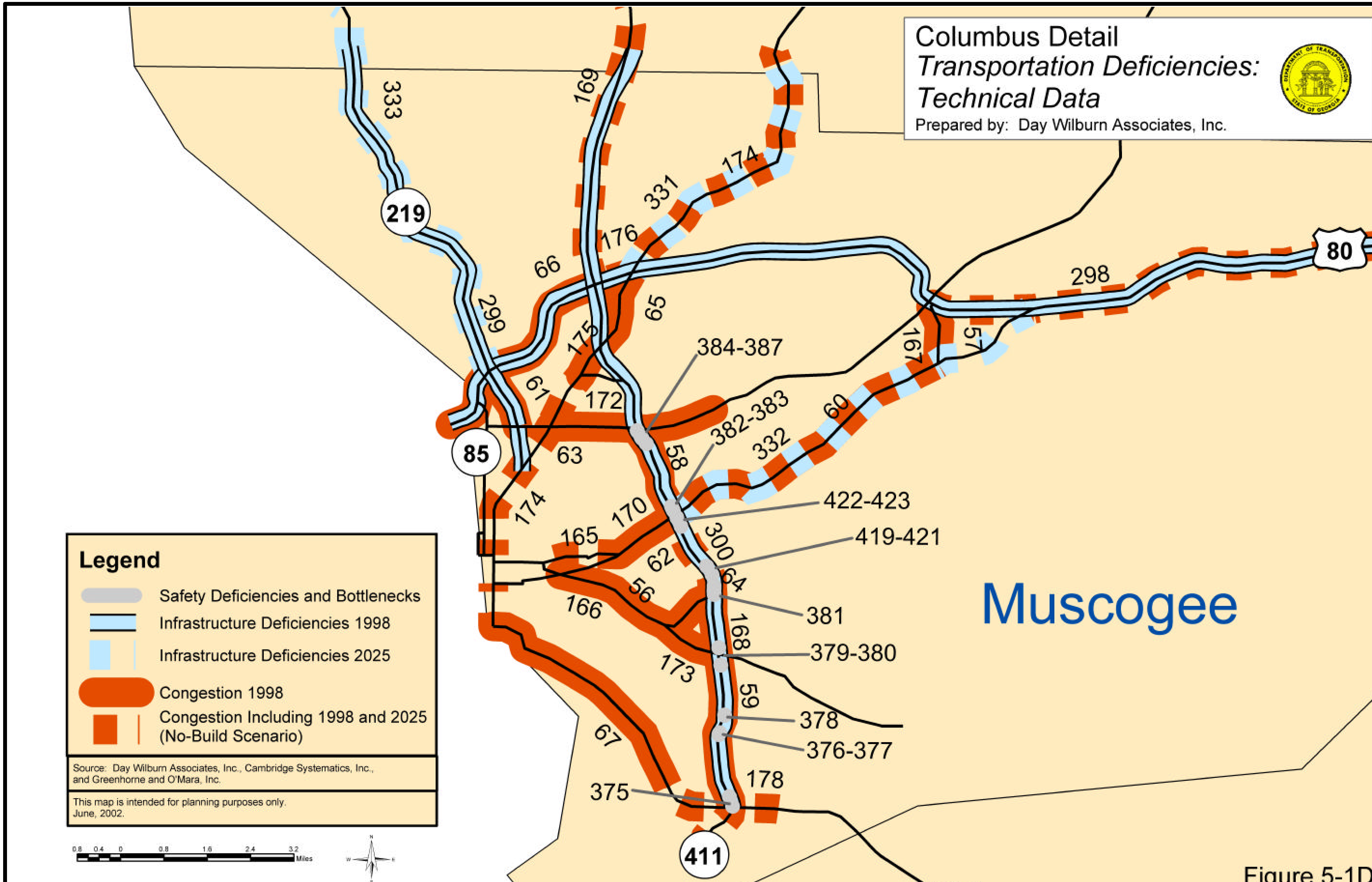

Columbus Detail
Transportation Deficiencies:
Technical Data
Prepared by: Day Wilburn Associates, Inc.
Muscogee
Legend
Safety Deficiencies and Bottlenecks
Infrastructure Deficiencies 1998
Infrastructure Deficiencies 2025
Congestion 1998
Congestion Including 1998 and 2025
(No-Build Scenario)
Source: Day Wilburn Associates, Inc., Cambridge Systematics, Inc., and Greenhorne and O'Mara, Inc.
This map is intended for planning purposes only.
June, 2002.
219
85
80
411
333
169
174
331
176
66
65
299
175
61
172
384-387
63
58
382-383
332
60
167
57
298
174
170
165
62
422-423
300
419-421
64
56
166
381
168
379-380
173
59
378
376-377
67
178
375
Figure 5-1D

Table 5-1

Deficiencies in the Central Georgia Corridor: Chattahoochee, Harris, Marion, Muscogee, Stewart, Talbot, Taylor, Upson Counties

LOCATION				SOURCE OF INFORMATION			ISSUE CATEGORY			
MAP CODE	COUNTY	LOCATION	LOCATION DESCRIPTION	INTERVIEW	TECHNICAL	ECONOMIC DEVELOPMENT	CONGESTION/ CAPACITY	SAFETY	ECONOMIC DEVELOPMENT	ADDITIONAL INFORMATION
189	Chattahoochee	U280	US 280 through Chattahoochee County - Poor Road Conditions	X				X		
143	Harris	I185	Over .7 V/C 2025 - I-185 btwn South County Line and S315		X		X			
318	Harris	U27	From Muscogee County Line to SR 116			X	X			Bridge
319	Harris	S219	From Muscogee Counnty Line to SR 103			X	X			Bridge
n/a	Harris	S1	SR 1 (US 27), 3 MILES SOUTH PINE MOUNTAIN			X				Bridge
n/a	Harris	S219	MOUNTAIN OAK CREEK, 1.5 MILES SOUTH WHITESVILLE			X				Bridge
n/a	Harris	S315	I-185 (SR 411 EXIT 10), 9 MILES S.W. HAMILTON			X				Bridge
n/a	Harris	S411	STANDING BOY CREEK, 10 MILES S.W. HAMILTON			X				Bridge
n/a	Harris	S411	MULBERRY CREEK, 7 MILES S.W. HAMILTON			X				Bridge
n/a	Harris	S411	S-2651 L. BLUE SPRINGS R, 8 MILES W.S.W. HAMILTON			X				Bridge
n/a	Harris	S411	S-2651 L. BLUE SPRINGS R, 8.5 MILES W.S.W. HAMILTON			X				Bridge
n/a	Harris	S411	SR 116, 5 MILES SOUTH WHITESVILLE			X				Bridge
n/a	Harris	S85	OSSAHATCHIE CREEK, 3.5 MI S OF WAVERLY HALL			X				Bridge
n/a	Harris	S85	MULBERRY CREEK, 1.5 MI N OF WAVERLY HALL			X				Bridge
n/a	Harris	S85	SOUTHERN RAILROAD, SHILOH - NORTHWEST CORNER			X				Bridge
56	Muscogee	Lbuena	Over .7 V/C 1998 - Buena Vista Rd. Columbus		X		X			
57	Muscogee	Lflatr	Over .7 V/C 1998 - Flatrock Rd south of US 80		X		X			
58	Muscogee	I185	Over .7 V/C 1998 - I-185 btwn. SR 85 and SR 22		X		X			
59	Muscogee	I185	Over .7 V/C 1998 - I-185 btwn. US 280 and Buena Vista Rd. Columbus		X		X			
60	Muscogee	S22SP	Over .7 V/C 1998 - Macon Rd. NE of Columbus		X		X			
61	Muscogee	S19	Over .7 V/C 1998 - River Rd. N of Downtown Columbus		X		X			
62	Muscogee	S22SP	Over .7 V/C 1998 - SR 22SP Wynnton Rd. btwn 13th St. and I-185		X		X			
63	Muscogee	U27A	Over .7 V/C 1998 - SR85 (Manchester or US 27A) east of US 27		X		X			
64	Muscogee	LStMar	Over .7 V/C 1998 - St. Mary's Rd. btwn. Buena Vista Rd. and I-185		X		X			
65	Muscogee	U27	Over .7 V/C 1998 - US 27 NE of Downtown Columbus		X		X			
66	Muscogee	U80	Over .7 V/C 1998 - US 80 btwn AL/GA State Line and I-185		X		X			
67	Muscogee	U280	Over .7 V/C 1998 - US280 SE of Columbus		X		X			
165	Muscogee	L13-ST	Over .7 V/C 2025 - 13th Street Columbus west of Wynnton Rd.		X		X			
166	Muscogee	Lbuena	Over .7 V/C 2025 - Buena Vista Rd. Columbus		X		X			
167	Muscogee	Lflatr	Over .7 V/C 2025 - Flatrock Rd south of US 80		X		X			
168	Muscogee	I185	Over .7 V/C 2025 - I-185 btwn. US 27 and US 280		X		X			
169	Muscogee	I185	Over .7 V/C 2025 - I-185 btwn. US 80 and North County Line		X		X			
170	Muscogee	S22SP	Over .7 V/C 2025 - SR 22SP Wynnton Rd. btwn 13th St. and I-185		X			X		
171	Muscogee	S411	Over .7 V/C 2025 - SR 411 South of I-185 Columbus		X			X		
172	Muscogee	U27A	Over .7 V/C 2025 - SR85 (Manchester or US 27A) east of US 27		X		X			
173	Muscogee	LStMar	Over .7 V/C 2025 - St. Mary's Rd. btwn. Buena Vista Rd. and I-185		X		X			
174	Muscogee	U27	Over .7 V/C 2025 - US 27 from US 280 to North County Line		X		X			
175	Muscogee	U27	Over .7 V/C 2025 - US 27 NE of Downtown Columbus		X			X		
176	Muscogee	U80	Over .7 V/C 2025 - US 80 btwn I-185 and US 27		X		X			
177	Muscogee	U80	Over .7 V/C 2025 - US 80 btwn SR85 and East County Line		X		X			
178	Muscogee	U280	Over .7 V/C 2025 - US280 SE of Columbus		X		X			
200	Muscogee	U280	US 280 SE of Columbus - Poor Road Conditions	X				X		
224	Muscogee	U80	US 80 - Congestion btwn SR85 and East County Line	X				X		
298	Muscogee	S22SP	SR 22 Spur from I-185 east for 2 miles			X	X			1998 Shoulders
299	Muscogee	S219	SR 219 from US 80 to US 27			X	X			1998 Shoulders
300	Muscogee	I185	I-185 from SR 85 to SR 1			X	X			1998 Shoulders
300	Muscogee	I185	I-185 from SR 85 toSR 22 SPUR			X	X			1998 Shoulders
331	Muscogee	U27	From Moon Rd. to the Harris County Line			X	X			whitetopping
332	Muscogee	S22SP	SR 22 Spur from I-185 to US 80/SR22			X	X			whitetopping
333	Muscogee	S219	From Bradley Park Dr. in Columbus to Harris County Line			X	X			Shoulder
375	Muscogee	I185	I185 @ mpt 0.02 at intersection of I185 & U27		X			X		
376	Muscogee	I185	I185 @ mpt 0.20 North of the intersection of U27 & I185		X			X		
377	Muscogee	I185	I185 @ mpt 1.39 in between U27 & Old Cusseta		X			X		

Table 5-1

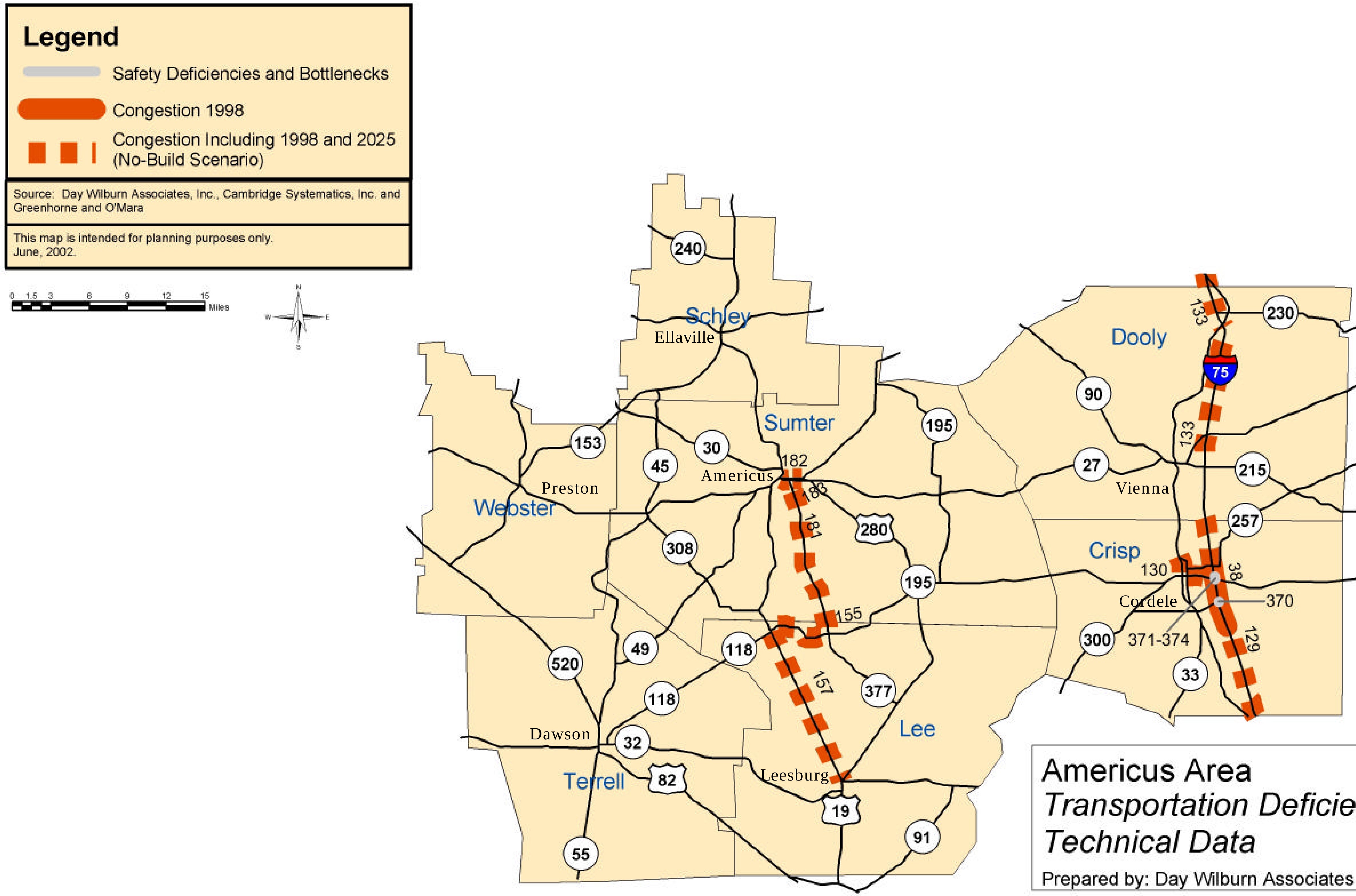
Deficiencies in the Central Georgia Corridor: Chattahoochee, Harris, Marion, Muscogee, Stewart, Talbot, Taylor, Upson Counties

LOCATION				SOURCE OF INFORMATION			ISSUE CATEGORY			
MAP CODE	COUNTY	LOCATION	LOCATION DESCRIPTION	INTERVIEW	TECHNICAL	ECONOMIC DEVELOPMENT	CONGESTION/ CAPACITY	SAFETY	ECONOMIC DEVELOPMENT	ADDITIONAL INFORMATION
379	Muscogee	I185	I185 @ mpt 1.73 iat intersection of I185 & Old Cusseta		X			X		
380	Muscogee	I185	I185 @ mpt 2.65 South of the intersection of I185 & Saint Mary's Rd		X			X		
381	Muscogee	I185	I185 @ mpt 2.98 North of the intersection of I185 & Saint Mary's Road		X			X		
382	Muscogee	I185	I185 @ mpt 3.95 Intersection of I185 & Buena Vista Road		X			X		
383	Muscogee	I185	I185 @ mpt 5.64 at intersection of I185 and Macon Rd.		X			X		
384	Muscogee	I185	I185 @ mpt 5.65 at intersection of I185 and Macon Rd.		X			X		
385	Muscogee	I185	I185 @ mpt 6.98 South of the intersection of U27A & I185		X			X		
386	Muscogee	I185	I185 @ mpt 7.10 South of the intersection of U27A & I185		X			X		
387	Muscogee	I185	I185 @ mpt 7.23 South of the intersection of U27A & I185		X			X		
419	Muscogee	I185	I185 @ mpt 5.31 just North of LBuena and I185 intersection		X			X		
420	Muscogee	I185	I185 @ mpt 5.61 just North of LBuena and I185 intersection		X			X		
421	Muscogee	I185	I185 @ mpt 4.06 just North of LBuena and I185 intersection		X			X		
422	Muscogee	I185	I185 @ mpt 4.45 just South of the I185 and SR22SP intersection		X			X		
423	Muscogee	I185	I185 @ mpt 4.49 just South of the I185 and SR22SP intersection		X			X		
n/a	Muscogee	I185	I-185 and US 80			X				whitetopping
n/a	Muscogee	I185	I-185 and US 27			X				Bridge
n/a	Muscogee	I185	I-185 and US 27A			X				
n/a	Muscogee	I185	I-185 and SR 22SP			X				
n/a	Muscogee	I185	I-185 and US 280			X				Full Depth Pavement
n/a	Muscogee	U80	US 27A and US 80			X				Full Depth Pavement
n/a	Muscogee	S22	BULL CREEK, 6 MILES EAST COLUMBUS			X				
n/a	Muscogee	S22	I-185(SR411)-2 I-185 RMP, N. COLUMBUS BY-PASS EXIT 7(411)			X				
n/a	Muscogee	S22	I-185(SR411)-2 I-185 RMP, N. COLUMBUS - EXIT 4			X				
n/a	Muscogee	S22	SR 22 (US 80), OVER SR 22 @ 4.41E- NORTH COLUMBUS			X				Bridge
n/a	Muscogee	U80	SR 219 and US 80			X				Bridge
n/a	Muscogee	S1	I-185 (SR 411), N.W. COLUMBUS			X				
n/a	Muscogee	S1	SR 1 (US 27), W. COLUMBUS UAB			X				
n/a	Muscogee	S1	SR 22- 2 SR 22 RAMPS, NORTH COLUMBUS			X				
n/a	Muscogee	S219	ROARING BRANCH, N.N.W. COLUMBUS CITY LIMITS			X				
n/a	Muscogee	S219	HEIFERHORN CREEK, 14 MI NW OF DOWNTOWN COLUMBUS			X				
n/a	Muscogee	S219	STANDING BOY CREEK, 10 MI N OF COLUMBUS			X				
n/a	Muscogee	S411	CS 14006 CUSSETA RD- R.R, 6.9 MI SE OF COLUMBUS			X				Bridge
n/a	Muscogee	S411	M-8000 OLD CUSSETA ROAD, 6.8 MI SE OF COLUMBUS			X				Bridge
n/a	Muscogee	S411	BULL CREEK TRIB., 3.8 MI SE OF COLUMBUS			X				Bridge
n/a	Muscogee	S411	BULL CREEK, 3.5 MI NE OF COLUMBUS			X				Bridge
n/a	Muscogee	S411	M-8034 MORRIS RD-NOR-SOU, CENTRAL COLUMBUS			X				Bridge
n/a	Muscogee	S411	M-8026 EDGEWOOD ROAD, NORTH CENTRAL COLUMBUS			X				Bridge
n/a	Muscogee	S411	CS 2202 COLLEGE DRIVE, CENTRAL COLUMBUS			X				Weigh Stations
n/a	Muscogee	S411	SR 85(US 27 ALT)(EXIT 7), SR 85- CENTRAL COLUMBUS			X				
n/a	Muscogee	S411	LINDSEY CREEK TRIB., 3.8 MI NE OF COLUMBUS			X				
n/a	Muscogee	S411	M-8049 ARMOUR ROAD EXIT8, CENTRAL COLUMBUS			X				
n/a	Muscogee	S411	M-8050 AIRPORT THRUWAY, NORTH CENTRAL COLUMBUS EXIT8			X				
n/a	Muscogee	S411	NORFOLK SOUTHERN RR., NORTHWEST COLUMBUS			X				
n/a	Muscogee	S411	NORFOLK SOUTHERN RR., .5 MI N OF SR 1- NORTH WEST COLUMBUS			X				
n/a	Muscogee	S411	M-8060 WHITTLESEY ROAD, NORTHWEST COLUMBUS			X				
n/a	Muscogee	S411	HEIFERHORN CREEK, NORTH COLUMBUS.			X				
n/a	Muscogee	S411	M-8049 ARMOUR ROAD EXIT8, NORTH CENTRAL COLUMBUS			X				
n/a	Muscogee	S411	I-185 (SR 411), CENTRAL COLUMBUS			X				
n/a	Muscogee	S411	SR 22 SPUR (EXIT 6), MACON RD.- CENTRAL COLUMBUS			X				
n/a	Muscogee	S411	I-185 from US 27 to US 27A			X				
n/a	Muscogee	S520	M-8000 CUSTER ROAD, SE COLUMBUS CTY LIMITS			X				

Table 5-1

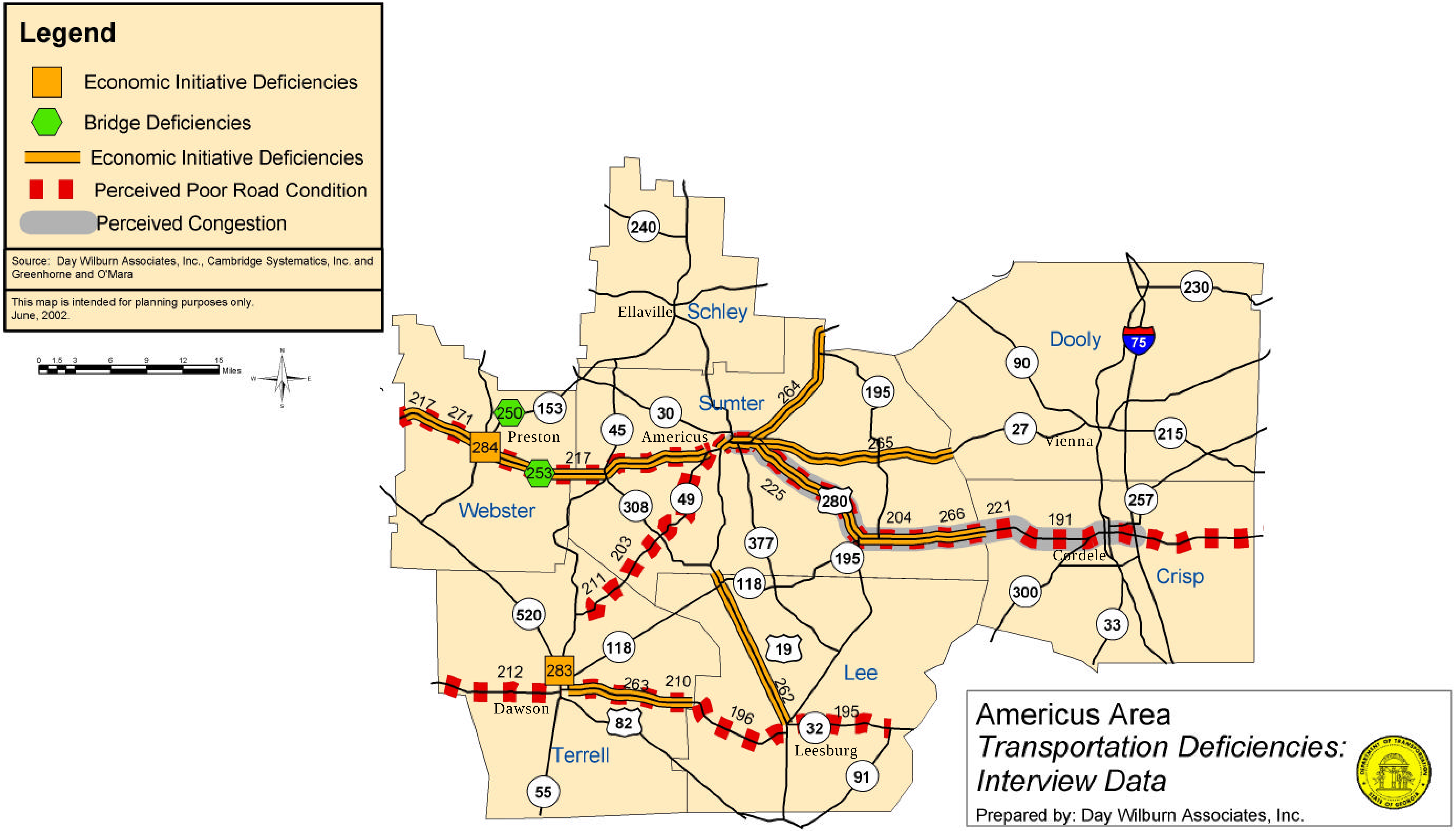
Deficiencies in the Central Georgia Corridor: Chattahoochee, Harris, Marion, Muscogee, Stewart, Talbot, Taylor, Upson Counties

LOCATION				SOURCE OF INFORMATION			ISSUE CATEGORY			
MAP CODE	COUNTY	LOCATION	LOCATION DESCRIPTION	INTERVIEW	TECHNICAL	ECONOMIC DEVELOPMENT	CONGESTION/ CAPACITY	SAFETY	ECONOMIC DEVELOPMENT	ADDITIONAL INFORMATION
n/a	Muscogee	S520	I-185 (SR 411), S.E. COLUMBUS			X				
n/a	Muscogee	S520	BULL CREEK, S. COLUMBUS UAB			X				Bridge
n/a	Muscogee	S520	M-8007- CHATT. RIVER- RR, ALA-GA STATE LINE- WEST COLUMBUS			X				Bridge
n/a	Muscogee	S520	SR 520 (US 27), COLUMBUS - SOUTHSIDE			X				Bridge
n/a	Muscogee	S85	NORFOLK SOUTHERN RR., 2.7 MI NE OF JCT SR 1- EAST COLUMBUS			X				Bridge
n/a	Muscogee	S85	M-8056 MILLER ROAD, 3.7 MI NE OF JCT SR 1- N.E COLUMBUS			X				Bridge
n/a	Muscogee	S85	SR 85 from SR 219 and US 27			X				whitetopping
n/a	Muscogee	S85	SR 85 from US 27 and I-185			X				Bridge
n/a	Muscogee	U27	US 27 from the Stewart County Line to just north of US 80			X				Bridge
202	Stewart	U280	US 280 through Stewart County - Poor Road Conditions	X				X		
249	Stewart	U280	US 280 and SR 520 and SR 27 - Bad Intersection	X			X			
254	Stewart	S27	SR A1327 near Sanford - Bad Bridge	X			X			
261	Stewart	US27	US 27	X			X		X	
n/a	Stewart	U 280	US 280 at East Broad Street in Richland			X	X			
n/a	Stewart	U 280	US 280 at Bishop Johnson Road			X		X		
n/a	Stewart	U 280	US 280 at Seminole Road			X		X		
n/a	Stewart	U 280	US 280 at Ponders Street Drive			X		X		
n/a	Stewart	U280	US 280 at Georgia SW			X				
n/a	Stewart	S1	HANNAHATCHEE CREEK, 7 MILES N. LUMPKIN			X				
n/a	Stewart	S27	CSX RAILROAD, IN NE RICHLAND			X				
205	Talbot	S96	SR 96 East County Line to US 80 - Poor Road Conditions	X			X			
206	Talbot	U80	US 80 through Talbot County - Poor Road Conditions	X			X			
226	Talbot	U80	US 80 through Talbot County - Congestion	X			X			
n/a	Talbot	S22	SOUTH FORK UPATOI CREEK, 1 MI N OF GENEVA			X				
n/a	Talbot	S22	POTTERS CREEK, 10.1 MI E OF TALBOTTON			X				
n/a	Talbot	S22	SR 22 (US 80), IN TALBOTTON CITY LIMITS			X				
n/a	Talbot	S128	PATSILIGA CREEK OVERFLOW, .5 MI N OF REYNOLDS			X				
n/a	Talbot	S128	PATSILIGA CREEK, .7 MI N OF REYNOLDS			X				
n/a	Talbot	S128	FLINT RIVER, 8 MI N OF REYNOLDS			X				
n/a	Talbot	S96	A Pair of Truck Weigh Stations			X				
208	Taylor	S96	SR 96 through Taylor County - Poor Road Conditions	X			X			
208	Taylor	U80	US 80 through Taylor County - Poor Road Conditions	X				X		
227	Taylor	U80	US 80 through Taylor County - Congestion	X				X		
244	Taylor	S137	SR 137 and Bulter Bypass - Bad Intersection	X			X			
245	Taylor	U19	US 19 and Butler Bypass - Bad Intersection	X				X		
301	Taylor	U19	US 19 at Southern Railway			X	X			1998 at-grade railroad crossing
426	Taylor	128	SR 128 at Southern Railway			X	X			Bridge
69	Upson	U19 n	Over .7 V/C 1998 - US 19 south of Thomaston		X		X			
185	Upson	U19 n	Over .7 V/C 2025 - US 19 south of Thomaston		X		X			
185	Upson	U19	Over .7 V/C 2025 - US 19 north of Thomaston		X		X			
215	Upson	S36	SR 36 - Poor Road Conditions	X			X			
216	Upson	U80	US 80 through Upson County - Poor Road Conditions	X				X		
228	Upson	U80	US 80 through Upson County - Congestion	X				X		
247	Upson	S36	US 19 and SR 36 in Thomaston - Bad Intersection	X				X		
255	Upson	SR 36	SR 36 from Thomaston to Barnesville	X			X		X	
256	Upson	Delray Road	Delray Road in Upson County	X					X	
n/a	Upson	U19	US 19 from just north of Taylor County line to Thomaston			X				



Americus Area
Transportation Deficiencies: Technical Data
Prepared by: Day Wilburn Associates, Inc.

Figure 5-2A



Americus Area

Transportation Deficiencies: Interview Data

Prepared by: Day Wilburn Associates, Inc.

Figure 5-2B

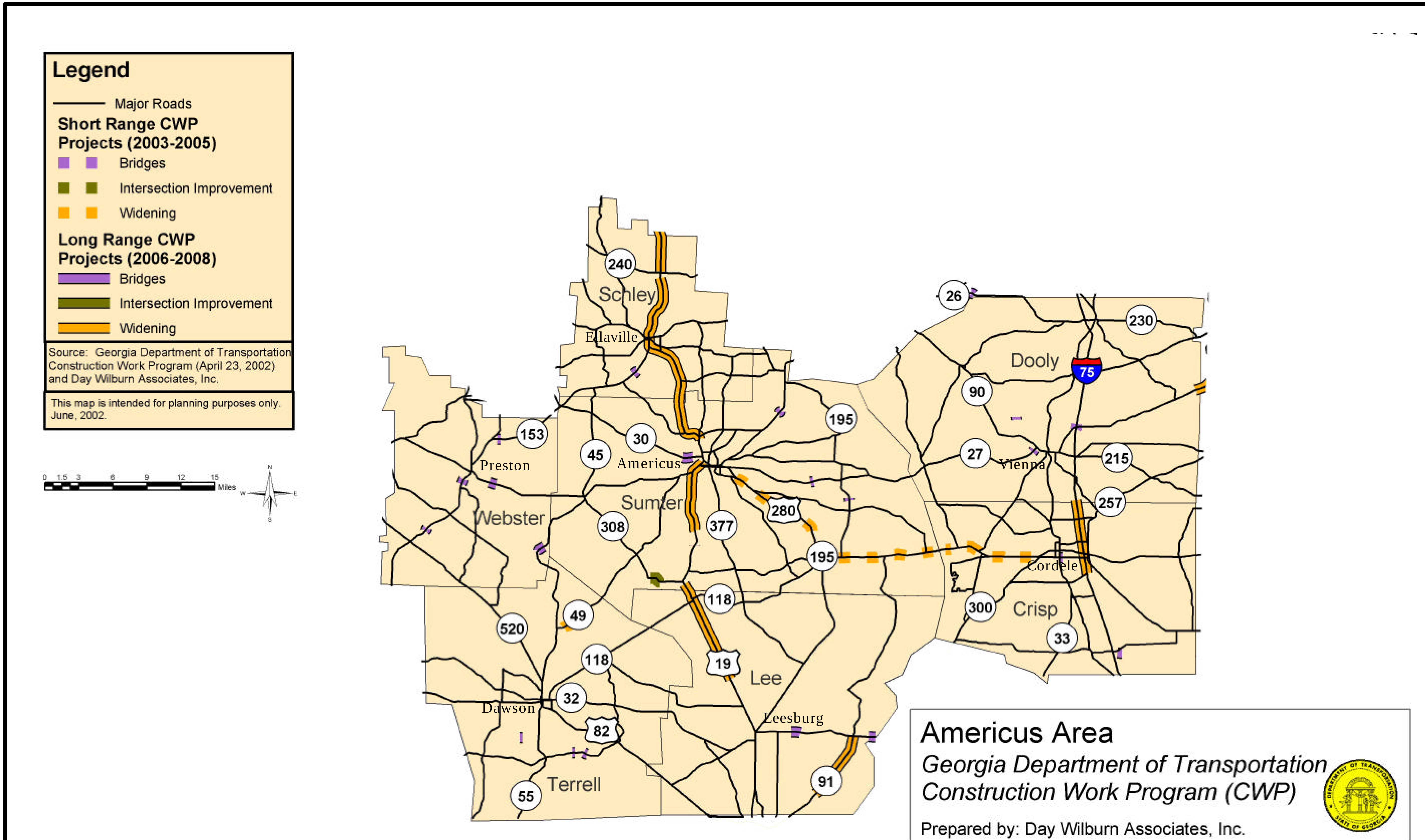

Legend
Major Roads
Short Range CWP Projects (2003-2005)
Bridges
Intersection Improvement
Widening
Long Range CWP Projects (2006-2008)
Bridges
Intersection Improvement
Widening
Source: Georgia Department of Transportation Construction Work Program (April 23, 2002) and Day Wilburn Associates, Inc.
This map is intended for planning purposes only. June, 2002.
0 1.5 3 6 9 12 15 Miles
N
E
W
S
Schley
Ellaville
Dooly
Vienna
Cordele
Crisp
Preston
Webster
Americus
Sumter
Lee
Leesburg
Dawson
Terrell
240
26
230
75
90
195
153
30
45
27
215
257
280
308
377
195
300
33
118
49
520
118
19
32
82
91
55
Americus Area
Georgia Department of Transportation
Construction Work Program (CWP)
Prepared by: Day Wilburn Associates, Inc.

Figure 5-2C

Table 5-2

Deficiencies in the Central Georgia Corridor:Crisp, Dooly, Lee, Schley, Sumter, Terrell, Webster Counties

LOCATION				SOURCE OF INFORMATION			ISSUE CATEGORY			
MAP CODE	COUNTY	LOCATION	LOCATION DESCRIPTION	INTERVIEW	TECHNICAL	ECONOMIC DEVELOPMENT	CONGESTION/ CAPACITY	SAFETY	ECONOMIC DEVELOPMENT	ADDITIONAL INFORMATION
38	Crisp	I75	Over .7 V/C 1998 - I-75 through Crisp County		X		X			
129	Crisp	I75	Over .7 V/C 2025 - I-75 through Crisp County		X		X			
130	Crisp	U41	Over .7 V/C 2025 - SR 7 Cordele		X		X			
130	Crisp	S7W	Over .7 V/C 2025 - SR 7 Cordele		X		X			
131	Crisp	U280	Over .7 V/C 2025 - US 280 Cordele		X			X		
191	Crisp	U280	US 280 through Crisp County - Poor Road Conditions	X				X		
221	Crisp	U280	US 280 West County Line to I-75 - Congestion	X			X			
370	Crisp	I75	I75 @ mpt 9.29 Intersection of I75 & GA300		X			X		
371	Crisp	I75	I75 @ mpt 11.05 South of the intersection of U280 & I75		X			X		
372	Crisp	I75	I75 @ mpt 11.19 North of the intersection of U280 & I75		X			X		
373	Crisp	I75	I75 @ mpt 11.21 North of the intersection of U280 & I75		X			X		
374	Crisp	I75	I75 @ mpt 11.26 North of the intersection of U280 & I75		X			X		
n/a	Crisp	U280	US 280 from Joe Wright Drive to Midway Road in Cordele			X	X			Bridge
133	Dooly	I75	Over .7 V/C 2025 - I-75 in Dooly County		X		X			
155	Lee	S118	Over .7 V/C 2025 - SR 118 btwn. SR 377 and Smithville		X		X			
156	Lee	S377	Over .7 V/C 2025 - SR 377 btwn. North County Line and SR 118		X			X		
157	Lee	U19	Over .7 V/C 2025 - US 19 btwn. Smithville and Leesburg		X		X			
195	Lee	S32	SR 32 btwn. US 19 and SR 91 - Poor Road Conditions	X			X			
196	Lee	S32	SR 32 East County Line to US19 - Poor Road Conditions	X			X			
262	Lee	US 19	US 19 from Smithville to Leesburg	X			X		X	
181	Sumter	S377	Over .7 V/C 2025 - SR 377 S of Americus					X		
182	Sumter	U280 e	Over .7 V/C 2025 - US280 EB btwn US19 & SR377		X			X		
183	Sumter	U280 w	Over .7 V/C 2025 - US280 WB btwn SR 377 &SR49 in Americus		X		X			
203	Sumter	S49	SR 49 Poor Road Conditions	X			X			
204	Sumter	U280	US 280 through Sumter County - Poor Road Conditions	X				X		
204	Sumter	U280 e	US 280 through Sumter County - Poor Road Conditions	X				X		
204	Sumter	U280 w	US 280 through Sumter County - Poor Road Conditions	X				X		
204	Sumter	U280	US 280 through Sumter County - Poor Road Conditions	X				X		
225	Sumter	U280 e	US 280 Americus to E county line congestion	X				X		
225	Sumter	U280 w	US 280 Americus to E county line congestion	X			X			
225	Sumter	U280	US 280 Americus to E county line congestion	X			X			
264	Sumter	SR 49	County line to county line	X			X			
265	Sumter	SR 27	County line to county line	X			X			
266	Sumter	US 280	County line to County line	X			X			
n/a	Sumter	U280	US 280 between US 19 south and US 19 split			X	X			
n/a	Sumter	U280	US 280 between US 19 and SR 49 north			X	X			
n/a	Sumter	U280	US 280 at SR 49 South			X	X			
n/a	Sumter	U280	US 280 through Plains (around peanut processing plants)			X	X			
n/a	Sumter	U280	US 280 at SR 45 in Plains			X	X			
n/a	Sumter	U280	US 280 at Hospital Street			X	X			
n/a	Sumter	S27	NORFOLK R/R, IN W AMERICUS			X				
n/a	Sumter	S27	FLINT RIVER- CR 301, 13.6 MILES EAST AMERICUS			X				
210	Terrell	S32	SR 32 Dawson to East County Line - Poor Road Conditions	X			X			
211	Terrell	S49	SR 49 btwn SR 45 and Sumter County Line - Poor Road Conditions	X			X			
212	Terrell	U82	US 82 Dawson to Randolph County Line - Poor Road Conditions	X				X		
263	Terrell	SR 32	SR 32 to I75	X			X		X	
283	Terrell	SR 520	SR 520 just north of SR 32	X			X	X	X	
217	Webster	U280	US 280 through Webster County - Poor Road Conditions	X				X		
250	Webster	S153	SR 153 - Bad Bridge	X			X			
253	Webster	U280	US 280 East of Dumas - Bad Bridge	X			X			
271	Webster	US 280	US 280	X					X	
284	Webster	SR 41	SR 41 and US 280	X				X	X	

Macon Area
Transportation Deficiencies: Technical Data

Prepared by: Day Wilburn Associates, Inc.

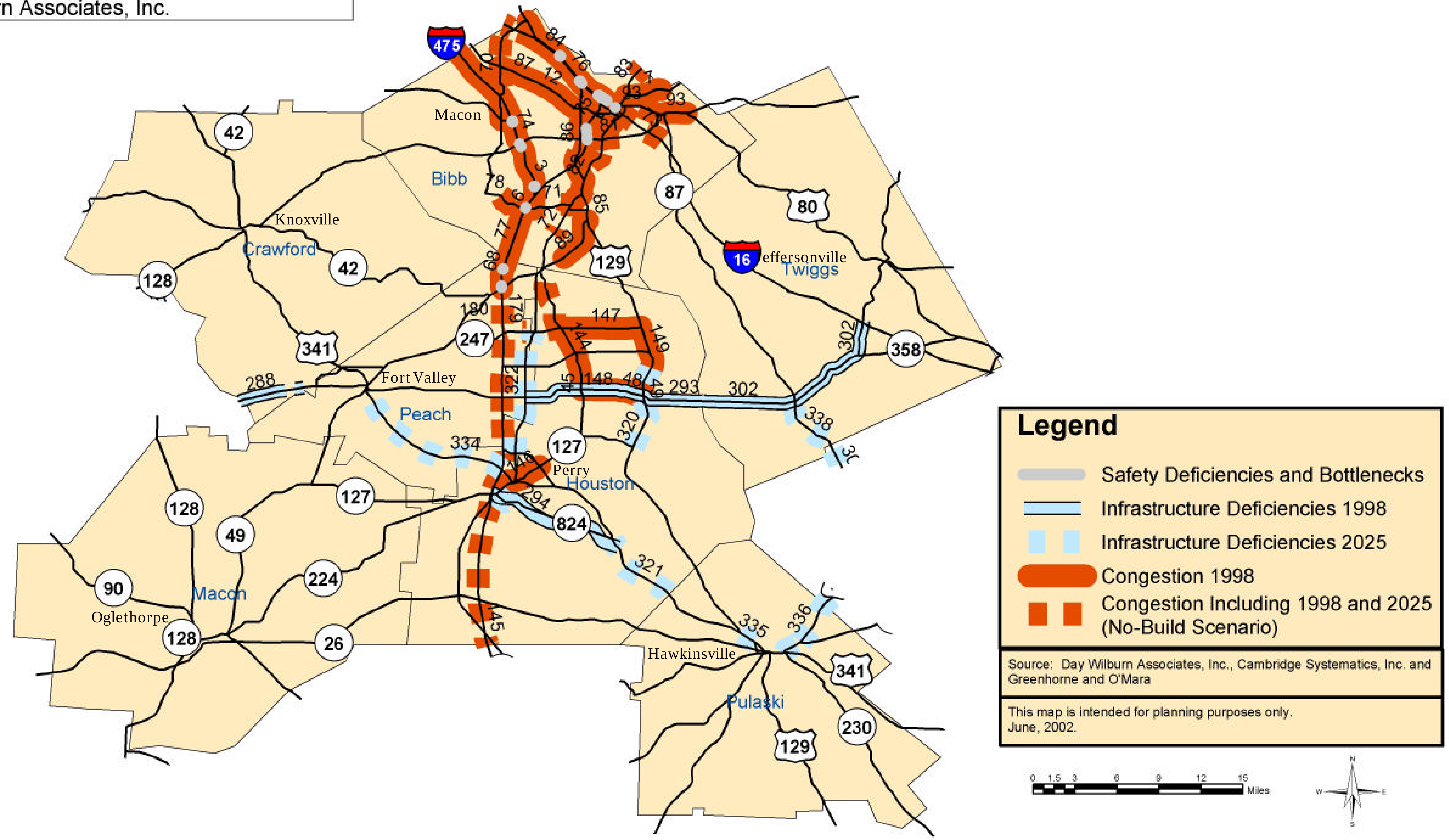


Figure 5-3A

Macon Area
Transportation Deficiencies: Interview Data

Prepared by: Day Wilburn Associates, Inc.

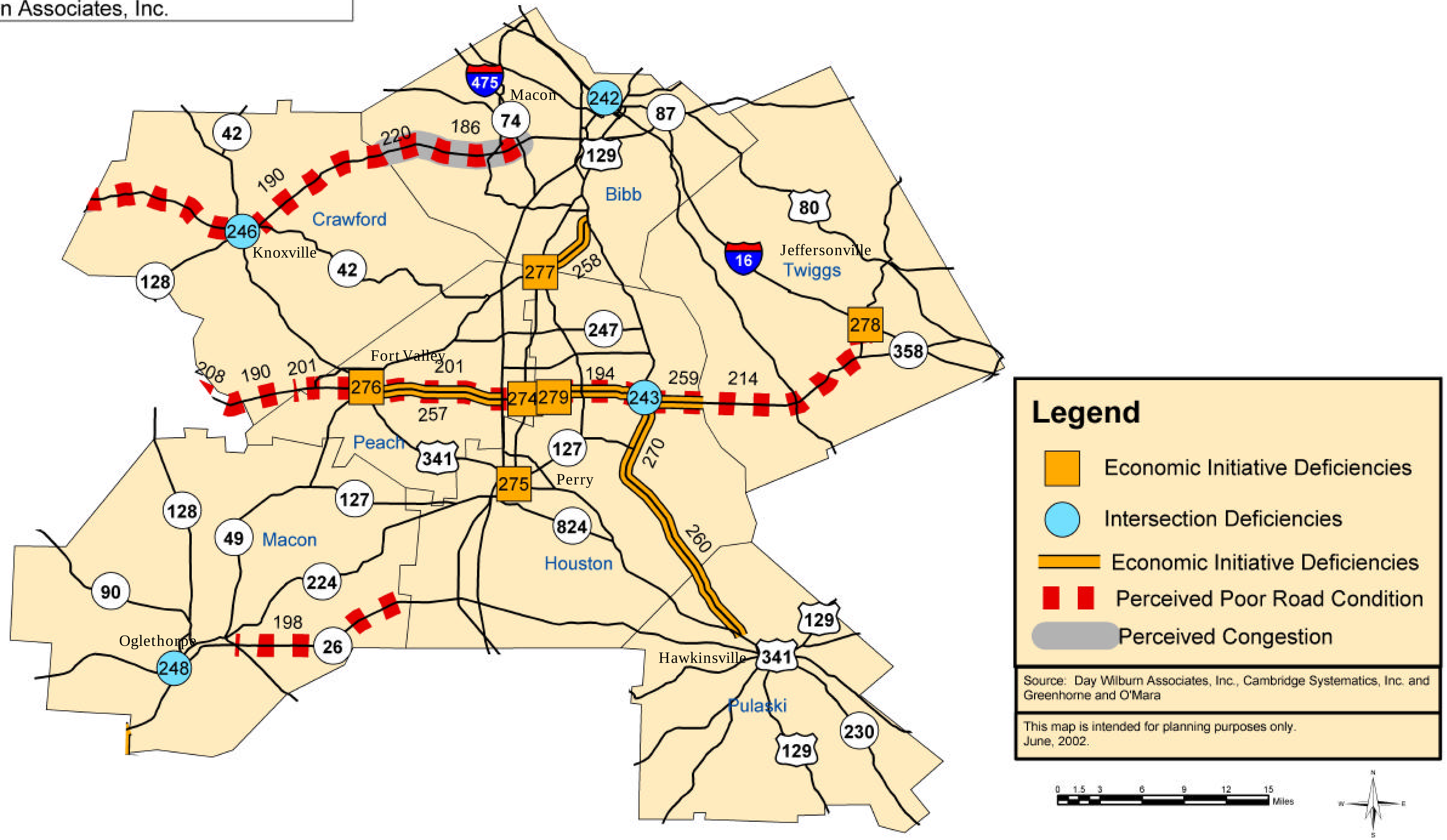


Figure 5-3B

Macon Area

Georgia Department of Transportation
Construction Work Program (CWP)

Prepared by: Day Wilburn Associates, Inc.

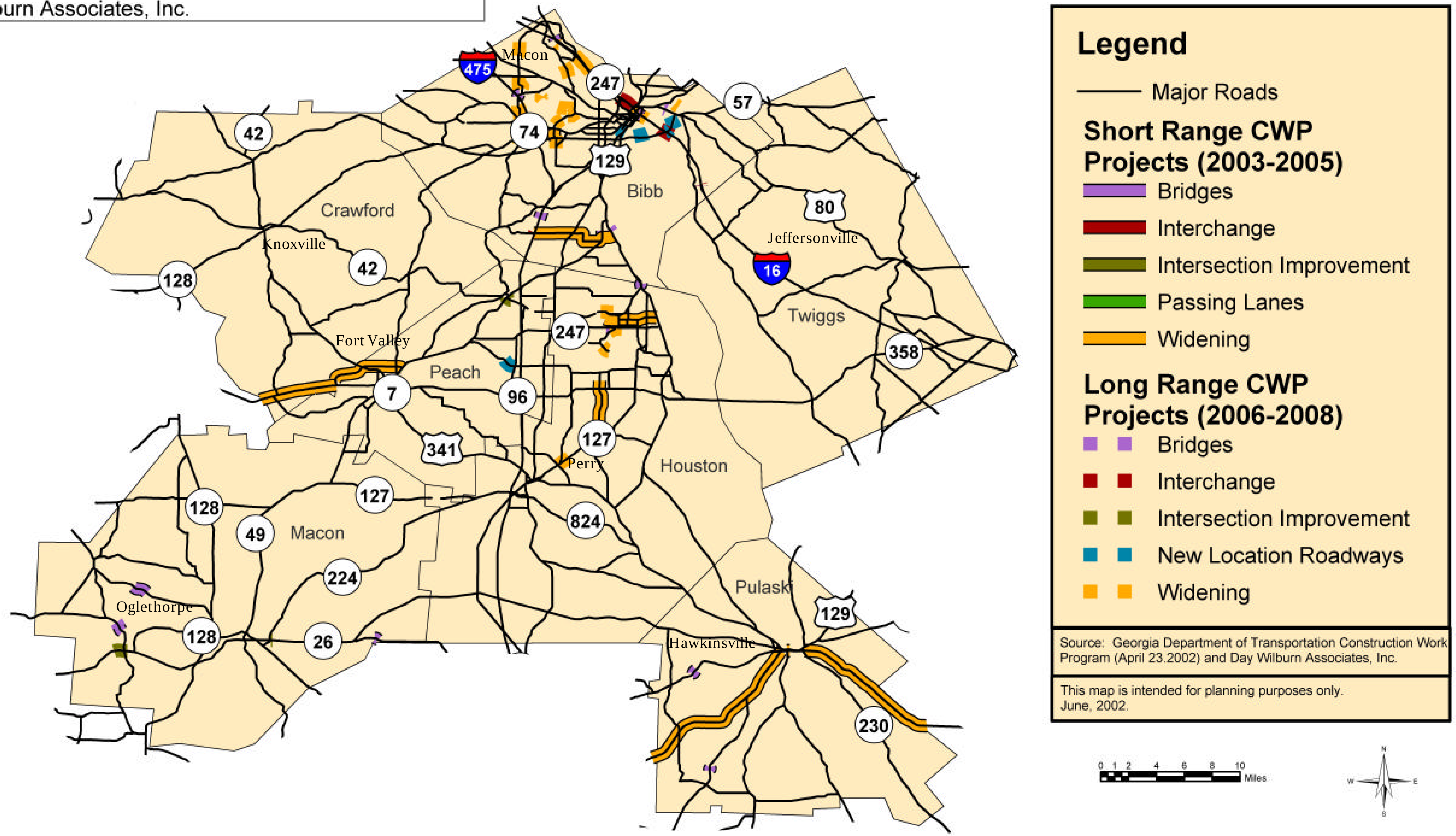
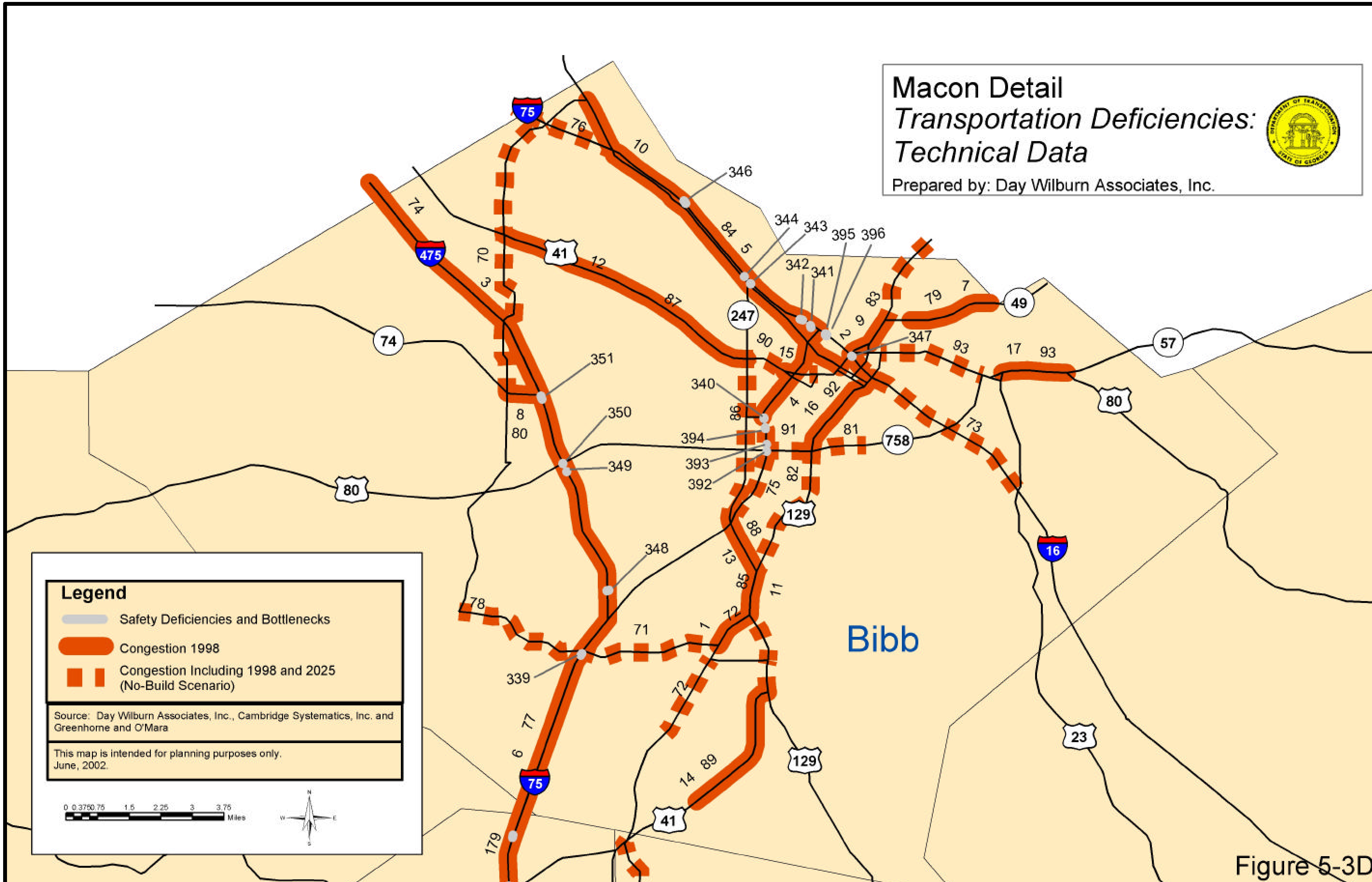
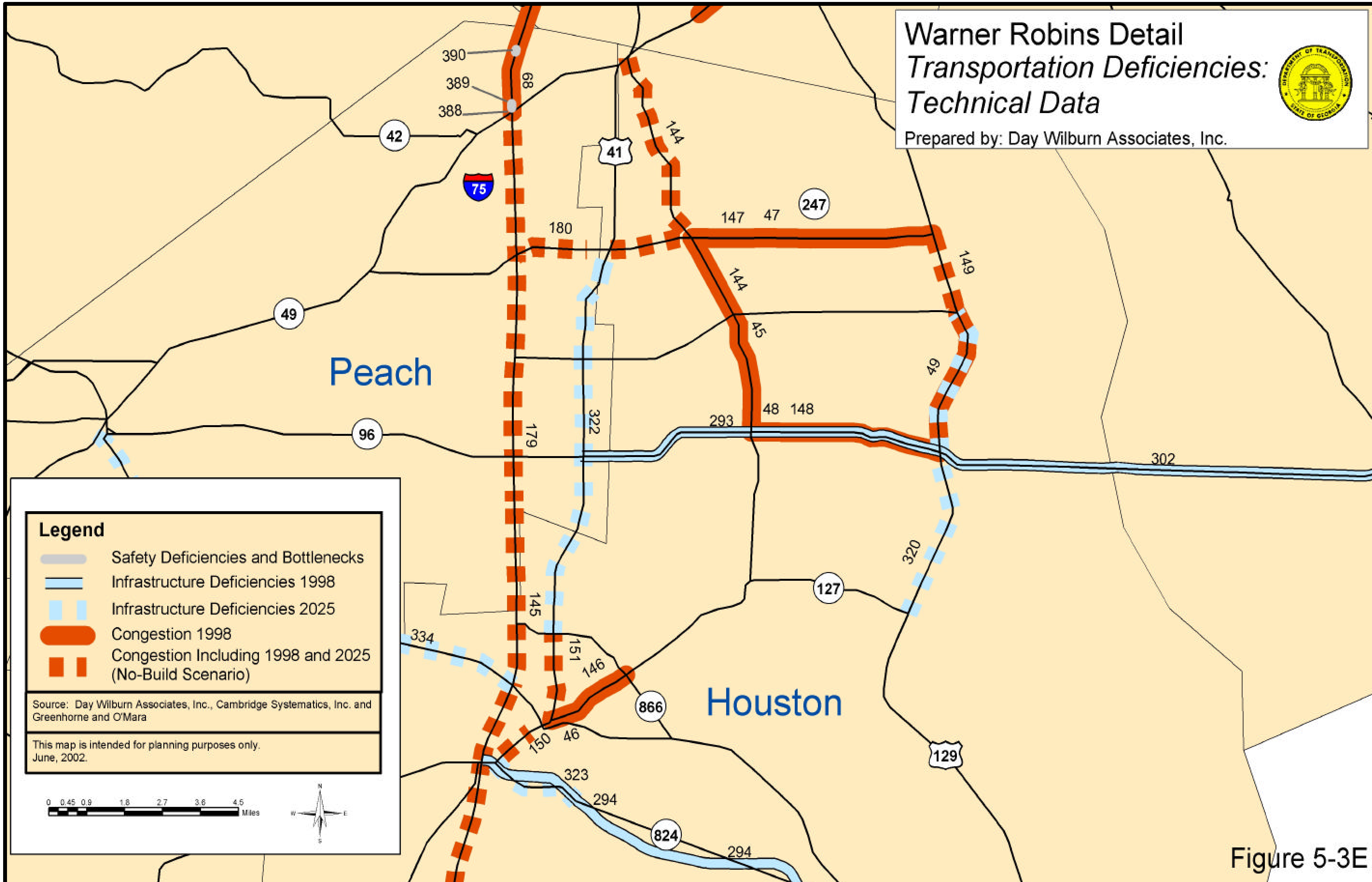


Figure 5-3C



Macon Detail
Transportation Deficiencies:
Technical Data
Prepared by: Day Wilburn Associates, Inc.
Legend
Safety Deficiencies and Bottlenecks
Congestion 1998
Congestion Including 1998 and 2025
(No-Build Scenario)
Source: Day Wilburn Associates, Inc., Cambridge Systematics, Inc. and Greenhorne and O'Mara
This map is intended for planning purposes only.
June, 2002.
Miles
Bibb
Figure 5-3D



Warner Robins Detail
Transportation Deficiencies: Technical Data
Prepared by: Day Wilburn Associates, Inc.
Peach
Houston
Legend
Safety Deficiencies and Bottlenecks
Infrastructure Deficiencies 1998
Infrastructure Deficiencies 2025
Congestion 1998
Congestion Including 1998 and 2025 (No-Build Scenario)
Source: Day Wilburn Associates, Inc., Cambridge Systematics, Inc. and Greenhorne and O'Mara
This map is intended for planning purposes only.
June, 2002.
0 0.45 0.9 1.8 2.7 3.6 4.5 Miles
390
389
388
68
42
41
75
144
247
147
47
180
144
149
49
45
49
96
322
179
293
48
148
302
320
127
145
334
151
146
866
150
46
323
294
824
294
129

Figure 5-3E

Table 5-3

Deficiencies in the Central Georgia Corridor:Bibb, Crawford, Houston, Macon, Peach, Pulaski, Twiggs Counties

LOCATION				SOURCE OF INFORMATION			ISSUE CATEGORY			
MAP CODE	COUNTY	LOCATION	LOCATION DESCRIPTION	INTERVIEW	TECHNICAL	ECONOMIC DEVELOPMENT	CONGESTION/ CAPACITY	SAFETY	ECONOMIC DEVELOPMENT	ADDITIONAL INFORMATION
1	Bibb	LHoust	Over .7 V/C 1998 - Houston Rd. btwn. South County Line and US 41		X		X			
2	Bibb	I16	Over .7 V/C 1998 - I-16 Macon		X		X			
3	Bibb	I475	Over .7 V/C 1998 - I-475 through Bibb County		X		X			
4	Bibb	I75	Over .7 V/C 1998 - I-75 btwn. US 41 and I-16		X		X			
5	Bibb	I75	Over .7 V/C 1998 - I-75 NW of Macon		X		X			
6	Bibb	I75	Over .7 V/C 1998 - I-75 south of I-475		X		X			
7	Bibb	S49	Over .7 V/C 1998 - SR 49 North of Macon		X		X			
8	Bibb	S74	Over .7 V/C 1998 - SR 74 btwn. I-475 and Heath Rd.		X		X			
9	Bibb	U129	Over .7 V/C 1998 - US 129 North of Macon		X		X			
10	Bibb	U23	Over .7 V/C 1998 - US 23 NW of Macon		X		X			
11	Bibb	U41	Over .7 V/C 1998 - US 41 btwn. Houston Rd. and US 129		X		X			
12	Bibb	U41	Over .7 V/C 1998 - US 41 btwn. SR 247 and Bass Rd. West of Macon		X		X			
13	Bibb	U41	Over .7 V/C 1998 - US 41 btwn. US 129 and I-75		X		X			
14	Bibb	U41	Over .7 V/C 1998 - US 41 South of US 129		X		X			
15	Bibb	S19 w	Over .7 V/C 1998 - US 41/SR 19 btwn. SR 247 and Downtown Macon		X		X			
16	Bibb	U80	Over .7 V/C 1998 - US 80 btwn. US 129 and I-16		X		X			
17	Bibb	U80	Over .7 V/C 1998 - US 80 NE of Macon		X		X			
70	Bibb	LBASS	Over .7 V/C 2025 - Bass Rd. btwn. SR 74 and I-75		X		X			
71	Bibb	LHARTL	Over .7 V/C 2025 - Hartley Bridge Rd. btwn. I-75 and Houston Rd.		X		X			
72	Bibb	LHoust	Over .7 V/C 2025 - Houston Rd. btwn. South County Line and US 41		X		X			
73	Bibb	I16	Over .7 V/C 2025 - I-16 Macon		X		X			
74	Bibb	I475	Over .7 V/C 2025 - I-475 through Bibb County		X		X			
75	Bibb	I75	Over .7 V/C 2025 - I-75 btwn. US 41 and I-16		X		X			
76	Bibb	I75	Over .7 V/C 2025 - I-75 NW of Macon		X		X			
77	Bibb	I75	Over .7 V/C 2025 - I-75 south of I-475		X		X			
78	Bibb	LMt_Pl	Over .7 V/C 2025 - Mt. Pleasant Church Rd. West of I-75		X		X			
79	Bibb	S49	Over .7 V/C 2025 - SR 49 North of Macon		X			X		
80	Bibb	S74	Over .7 V/C 2025 - SR 74 btwn. I-475 and Heath Rd.		X		X			
81	Bibb	S758	Over .7 V/C 2025 - SR 758 (Eisenhower East of US 129)		X		X			
82	Bibb	U129	Over .7 V/C 2025 - US 129 btwn. US 41 and US 80		X		X			
83	Bibb	U129	Over .7 V/C 2025 - US 129 North of Macon		X		X			
84	Bibb	U23	Over .7 V/C 2025 - US 23 NW of Macon		X		X			
85	Bibb	U41	Over .7 V/C 2025 - US 41 btwn. Houston Rd. and US 129		X		X			
86	Bibb	U41	Over .7 V/C 2025 - US 41 btwn. I-75 and SR 247		X		X			
87	Bibb	U41	Over .7 V/C 2025 - US 41 btwn. SR 247 and Bass Rd. West of Macon		X		X			
88	Bibb	U41	Over .7 V/C 2025 - US 41 btwn. US 129 and I-75		X		X			
89	Bibb	U41	Over .7 V/C 2025 - US 41 South of US 129		X		X			
90	Bibb	S19 w	Over .7 V/C 2025 - US 41/SR 19 btwn. SR 247 and Downtown Macon		X			X		
90	Bibb	U41BR	Over .7 V/C 2025 - US 41/SR 19 btwn. SR 247 and Downtown Macon		X			X		
91	Bibb	U80	Over .7 V/C 2025 - US 80 btwn. I-75 and US 129		X		X			
92	Bibb	U80	Over .7 V/C 2025 - US 80 btwn. US 129 and I-16		X			X		
93	Bibb	U80	Over .7 V/C 2025 - US 80 NE of Macon		X		X			
93	Bibb	U80	Over .7 V/C 2025 - US 80 NE of Macon		X		X			
186	Bibb	U80	US 80 East of I-475 - Poor Road Conditions	X			X			
220	Bibb	U80	US 80 East of I-475 - Congestion	X				X		
242	Bibb	I16	I-16 and I-75 - Bad Intersection	X			X			
258	Bibb	SR 49	SR 49 from Houston County line to 247	X				X		
339	Bibb	I75	I75 @ mpt 3.4 near Hartley Bridge Rd.		X			X		
340	Bibb	I75	I75 @ mpt 10.72 near Mercer University Drive		X			X		
342	Bibb	I75	I75 at mpt 13.24 near I16		X			X		
343	Bibb	I75	I75 @ mpt 14.97 near the intersection of I75 & SR 247		X			X		
344	Bibb	I75	I75 @ mtp 15.2 near intersection of I75 and SR247		X			X		
346	Bibb	I75	I75 @ mpt 17.28 between Arkwright and Red Oak		X			X		

Table 5-3
Deficiencies in the Central Georgia Corridor:Bibb, Crawford, Houston, Macon, Peach, Pulaski, Twiggs Counties

LOCATION				SOURCE OF INFORMATION			ISSUE CATEGORY			
MAP CODE	COUNTY	LOCATION	LOCATION DESCRIPTION	INTERVIEW	TECHNICAL	ECONOMIC DEVELOPMENT	CONGESTION/ CAPACITY	SAFETY	ECONOMIC DEVELOPMENT	ADDITIONAL INFORMATION
347	Bibb	I16	I16 @ mpt 1.16 near the intersection of US41 & I16		X			X		
348	Bibb	I475	I475 @ mpt .73 near the intersection of I75 & I475		X			X		
349	Bibb	I475	I475 @ mpt 3.78 at Chambers Rd.		X			X		
350	Bibb	I475	I475 @ mpt 3.99 @ US80		X			X		
351	Bibb	I475	I475 @ mpt 5.7 near S74		X			X		
352	Bibb	U41	US41 at the intersection of US41 and Liberty Church		X			X		
392	Bibb	I75	I75 @ mpt 9.91 just South of the I75 and US80 intersection		X			X		
393	Bibb	I75	I75 @ mpt 10.08 just North of the I75 and US80 intersection		X			X		
394	Bibb	I75	I75 @ mpt 10.47 just North of the I75 and US80 intersection		X			X		
395	Bibb	I16	I16 @ mpt .43 near the I16 &!75 intersection		X			X		
396	Bibb	I16	I16 @ mpt .44 near the I16 &!75 intersection		X			X		
n/a	Bibb	n/a	All major roads E of I-75 (incl. I-75) in Bibb County - Congestion	X			X			
190	Crawford	U80	US 80 through Crawford County - Poor Road Conditions	X				X		
190	Crawford	S96	SR 96 through Crawford County - Poor Road Conditions	X			X			
246	Crawford	U341	US 341 and SR 128 - Bad Intersection	X				X		
288	Crawford	S96	SR 96 at NS Railroad			X	X			1998 Shoulders
n/a	Crawford	S22	BAILEY BRANCH, 8 MI W OF ROBERTA			X				whitetopping
n/a	Crawford	S22	ULCOHATCHEE CREEK, 6 MI W OF ROBERTA			X				whitetopping
n/a	Crawford	S22	ECHECONNEE CREEK, 10 MI NE OF ROBERTA			X				Bridge
n/a	Crawford	S7	CR 117, 9 MI N OF ROBERTA			X				Bridge
n/a	Crawford	S96	MACOMIS CREEK, 10 MI S OF ROBERTA			X				Bridge
45	Houston	Lhoust	Over .7 V/C 1998 - Houston Lakes Blvd. SR 96 to US 41		X		X			
46	Houston	S127	Over .7 V/C 1998 - SR 127 Perry		X		X			
47	Houston	S247C	Over .7 V/C 1998 - SR 247 C btwn. US 41 to US 129		X		X			
48	Houston	S96	Over .7 V/C 1998 - SR 96 btwn. Houston Lakes and US 129		X		X			
49	Houston	U129	Over .7 V/C 1998 - US 129 btwn SR 247C and SR 96		X		X			
144	Houston	Lhoust	Over .7 V/C 2025 - Houston Lakes Blvd. SR 96 to US 41		X		X			
145	Houston	I75	Over .7 V/C 2025 - I-75 through Houston County		X		X			
146	Houston	S127	Over .7 V/C 2025 - SR 127 Perry		X			X		
147	Houston	S247C	Over .7 V/C 2025 - SR 247 C btwn. US 41 to US 129		X			X		
148	Houston	S96	Over .7 V/C 2025 - SR 96 btwn. Houston Lakes and US 129		X		X			
149	Houston	U129	Over .7 V/C 2025 - US 129 btwn SR 247C and SR 96		X		X			
150	Houston	U41	Over .7 V/C 2025 - US 41 btwn. Perry and I-75		X		X			
151	Houston	U41	Over .7 V/C 2025 - US 41 Perry		X		X			
194	Houston	S96	SR 96 through Houston County - Poor Road Conditions	X			X			
243	Houston	U129	US 129 and SR 96 - Bad Intersection	X				X		
259	Houston	SR 96	SR 96	X			X		X	
260	Houston	SR 247	SR 247	X			X	X	X	
275	Houston	US 341	US 341 crossing the main CSX line in Houston	X			X	X		
277	Houston	Houston Lake F	Houston Lake Rd at SR 49	X				X		
279	Houston	SR 96	SR 96 at South Houston Lake Road	X			X			
293	Houston	S96	SR 96 at Southern Railway			X	X			1998 Shoulders
294	Houston	S824	SR 824 from I-75 to just west of the Pulaski County Line			X	X			1998 at-grade railroad crossing
320	Houston	U129	US 129 from SR 127 to Lrusse			X	X			Bridge
321	Houston	U341	US 341 from Pulaski County line to SR 112			X	X			whitetopping
322	Houston	U41	US 41 from SR 866 to SR 247C			X	X			Bridge
323	Houston	S824	SR 824 from I-75 to 2 miles east of I-75			X	X			Bridge
334	Houston	U341	US 341 from Peach County Line to I-75			X	X			Bridge
n/a	Houston	n/a	All major roads N of SR 96 (incl. SR 96) in Houston County - Congestion	X			X			
n/a	Houston	S96	OCMULGEE RIVER, 3.3 MILES EAST BONAIRE			X				Bridge
n/a	Houston	S96	SR 96 from Peach County Line to SR 247			X	X			Bridge
n/a	Houston	S96	SR 96 from SR 247 to Twiggs County Line			X	X			Bridge
n/a	Houston	S96	SR 96 from Peach County Line to SR 247			X				Bridge

Table 5-3
Deficiencies in the Central Georgia Corridor:Bibb, Crawford, Houston, Macon, Peach, Pulaski, Twiggs Counties

LOCATION				SOURCE OF INFORMATION			ISSUE CATEGORY			
MAP CODE	COUNTY	LOCATION	LOCATION DESCRIPTION	INTERVIEW	TECHNICAL	ECONOMIC DEVELOPMENT	CONGESTION/ CAPACITY	SAFETY	ECONOMIC DEVELOPMENT	ADDITIONAL INFORMATION
n/a	Houston	S11	SOUTHERN RAILROAD, 6.9 MI SE OF PERRY			X				Bridge
n/a	Houston	S11	SR 11 (US 341), 7 MI SE OF PERRY			X				Shoulder
n/a	Houston	S247	BIG INDIAN CREEK, 9 MILES SOUTHEAST PERRY			X				Bridge
n/a	Houston	S401	SR 7 (US 41), 4 MILES SOUTHWEST ELKO			X				Bridge
n/a	Houston	S401	SR 7 (US 341), PERRY - NW SECTION			X				Bridge
n/a	Houston	S7	BIG INDIAN CREEK, PERRY - CENTER SECTION			X				Bridge
198	Macon	S26	SR 26 - Poor Road Conditions btwn Montezuma and East County Line	X			X			
248	Macon	S49	SR 49 and SR 26 - Bad Intersection	X			X			
68	Peach	I75	Over .7 V/C 1998 - I-75 North County Line to SR 49		X		X			
179	Peach	I75	Over .7 V/C 2025 - I-75 through Peach County		X		X			
180	Peach	S247C	Over .7 V/C 2025 - SR 247C I-75 to East County Line		X		X			
201	Peach	S96	SR 96 through Peach County - Poor Road Conditions	X			X			
257	Peach	SR 96	SR 96 in Peach to Fort Valley	X			X			
274	Peach	SR 96	US 41 at SR 96	X				X	X	
276	Peach	Bluebird	Bluebird at 341, 96, and 49	X			X		X	
334	Peach	U341	US 341from Houston County Line to Fort Valley			X	X			Bridge
388	Peach	I75	I75 @ mpt 9.1 at intersection of I75 & SR49		X			X		
389	Peach	I75	I75 @ mpt 9.12 at intersection of I75 & SR49		X			X		
390	Peach	I75	I75 @ mpt 9.22 at intersection of I75 & SR49		X			X		
n/a	Peach	S49C	SR 49C at Southern Railway			X	X			Bridge
n/a	Peach	I75	I-75 and SR 96			X				
n/a	Peach	I75	I-75 and US 341			X				
n/a	Peach	S401	I-75, 2 MI NE OF BYRON			X				
n/a	Peach	S96	SR 96 From Fort Valley to I-75			X	X			at-grade railroad crossing
n/a	Peach	S96	SR 96 from I-75 to Houston County Line			X	X			
n/a	Peach	S96	SR 96 From Fort Valley to I-75			X				
270	Pulaski	Hwy 247	Hwy 247 from US 341 to SR 96	X			X		X	
335	Pulaski	U129	From SR 247SP to SR 26			X	X			Bridge
336	Pulaski	U129A	From Bleckley County Line to Sr 257			X	X			Bridge
214	Twiggs	S96	SR 96 East County Line to I-16 - Poor Road Conditions	X			X			
278	Twiggs	SR 96	SR 96 at I-16	X				X		
302	Twiggs	S96	SR 96 at Norfolk Southern			X	X			1998 at-grade railroad crossing
302	Twiggs	S96	SR 96 at Wilmington Terminal Railroad Inc.			X	X			1998 at-grade railroad crossing
338	Twiggs	U23	From SR 96 to Bleckley County Line			X	X			Bridge
n/a	Twiggs	I16	I-16 and SR 96			X				
n/a	Twiggs	S404	CR 71, 3.6 MI N OF BULLARD			X				
n/a	Twiggs	S96	I-16 (SR 404), 4.5 MI S OF JEFFERSONVILL			X				
n/a	Twiggs	S96	SR 96 From Houston County Line to I-16			X	X			

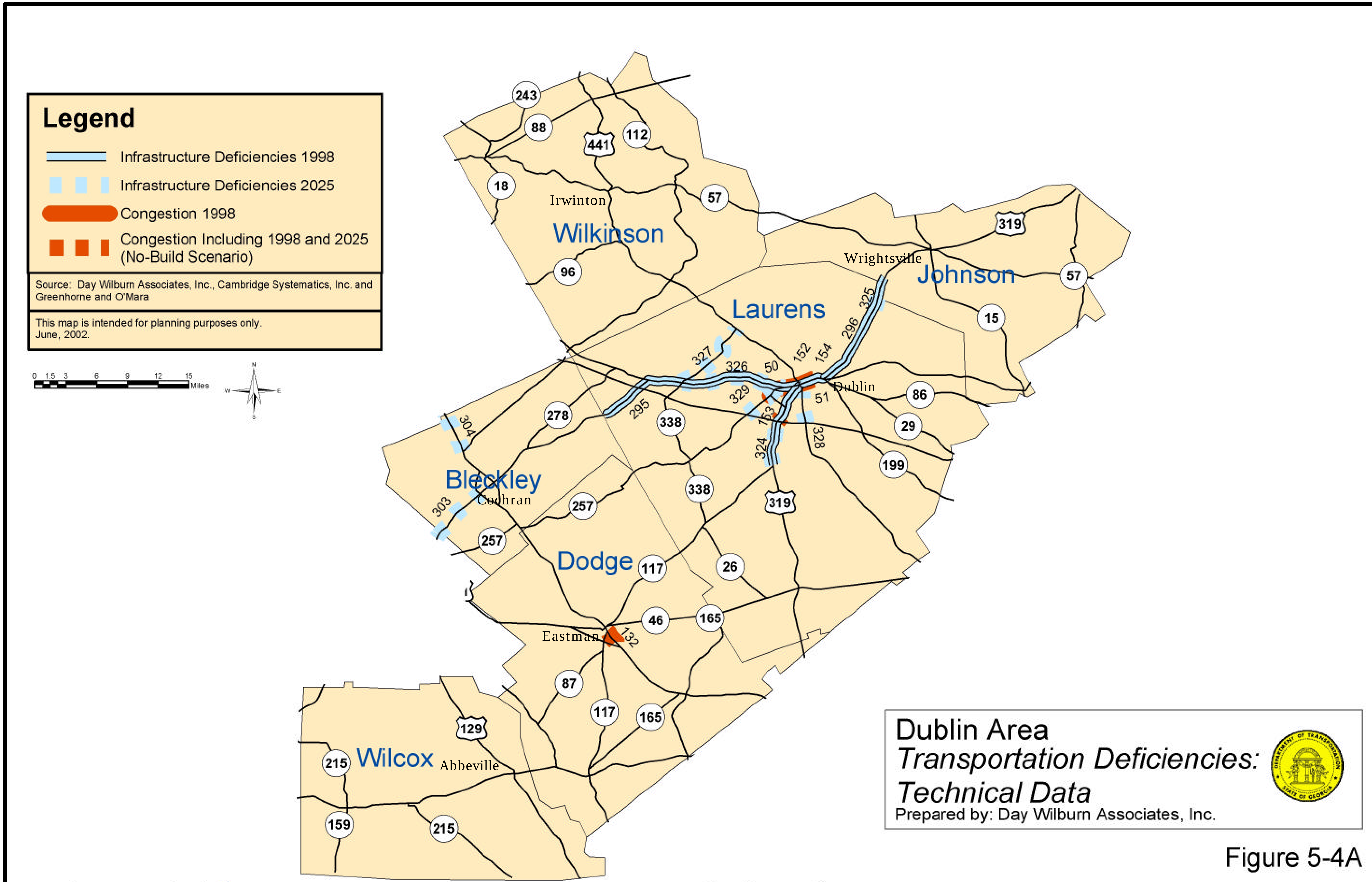
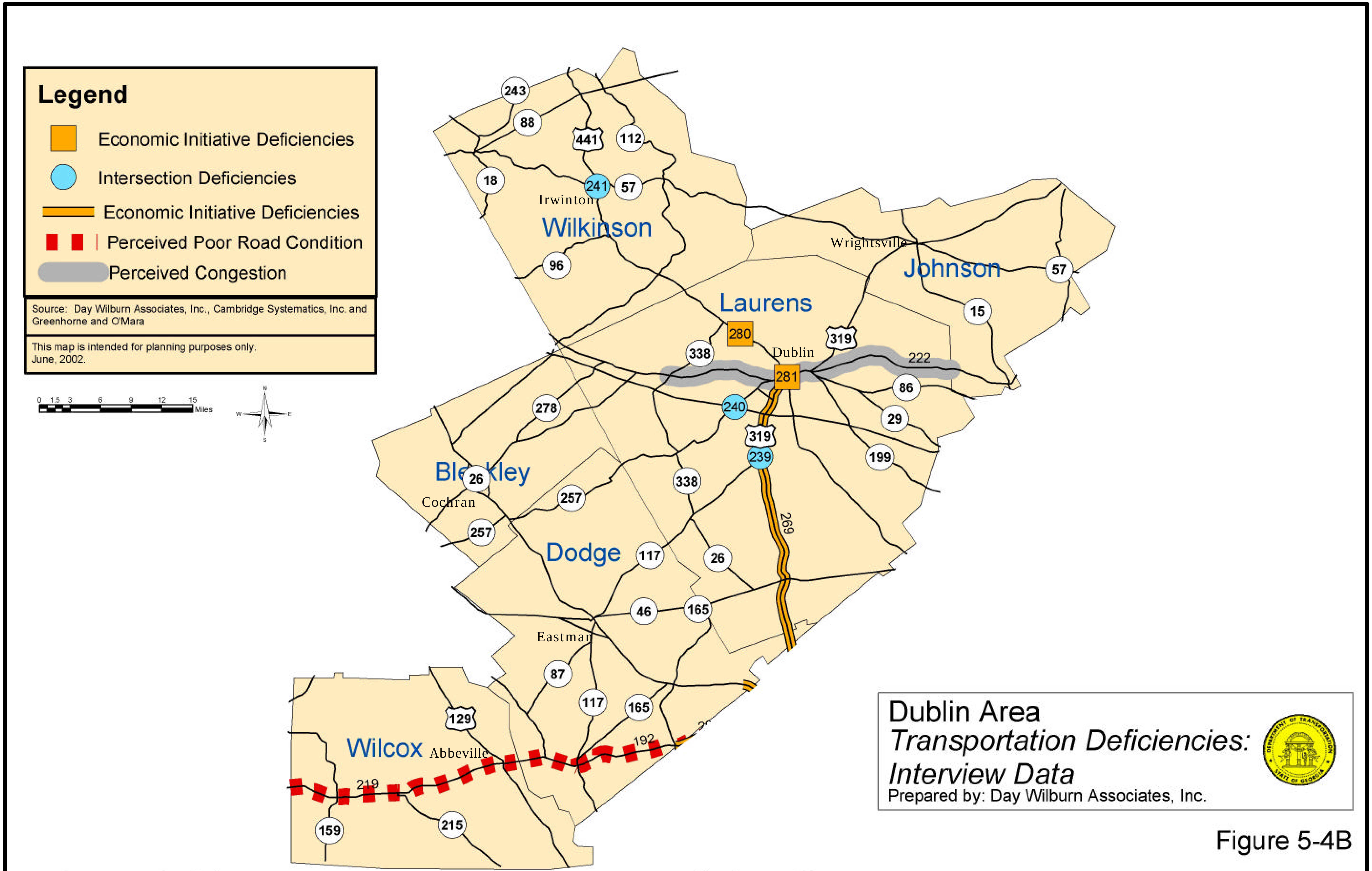

Legend
Infrastructure Deficiencies 1998
Infrastructure Deficiencies 2025
Congestion 1998
Congestion Including 1998 and 2025 (No-Build Scenario)
Source: Day Wilburn Associates, Inc., Cambridge Systematics, Inc. and Greenhorne and O'Mara
This map is intended for planning purposes only.
June, 2002.
0 1.5 3 6 9 12 15 Miles
Wilkinson
Laurens
Johnson
Bleckley
Dodge
Wilcox
Irwinton
Wrightsville
Dublin
Cochran
Eastman
Abbeville
Dublin Area
Transportation Deficiencies: Technical Data
Prepared by: Day Wilburn Associates, Inc.

Figure 5-4A



Legend
Economic Initiative Deficiencies
Intersection Deficiencies
Economic Initiative Deficiencies
Perceived Poor Road Condition
Perceived Congestion
Source: Day Wilburn Associates, Inc., Cambridge Systematics, Inc. and Greenhorne and O'Mara
This map is intended for planning purposes only.
June, 2002.
0 1.5 3 6 9 12 15 Miles
Wilkinson
Irwinton
Laurens
Dublin
Wrightsville
Johnson
Bleckley
Cochran
Dodge
Eastman
Wilcox
Abbeville
243
88
441
112
18
241
57
96
280
338
319
222
281
86
278
240
29
319
239
199
26
257
338
269
257
117
26
46
165
87
117
165
129
192
219
159
215
15
57
Dublin Area
Transportation Deficiencies:
Interview Data
Prepared by: Day Wilburn Associates, Inc.
Figure 5-4B

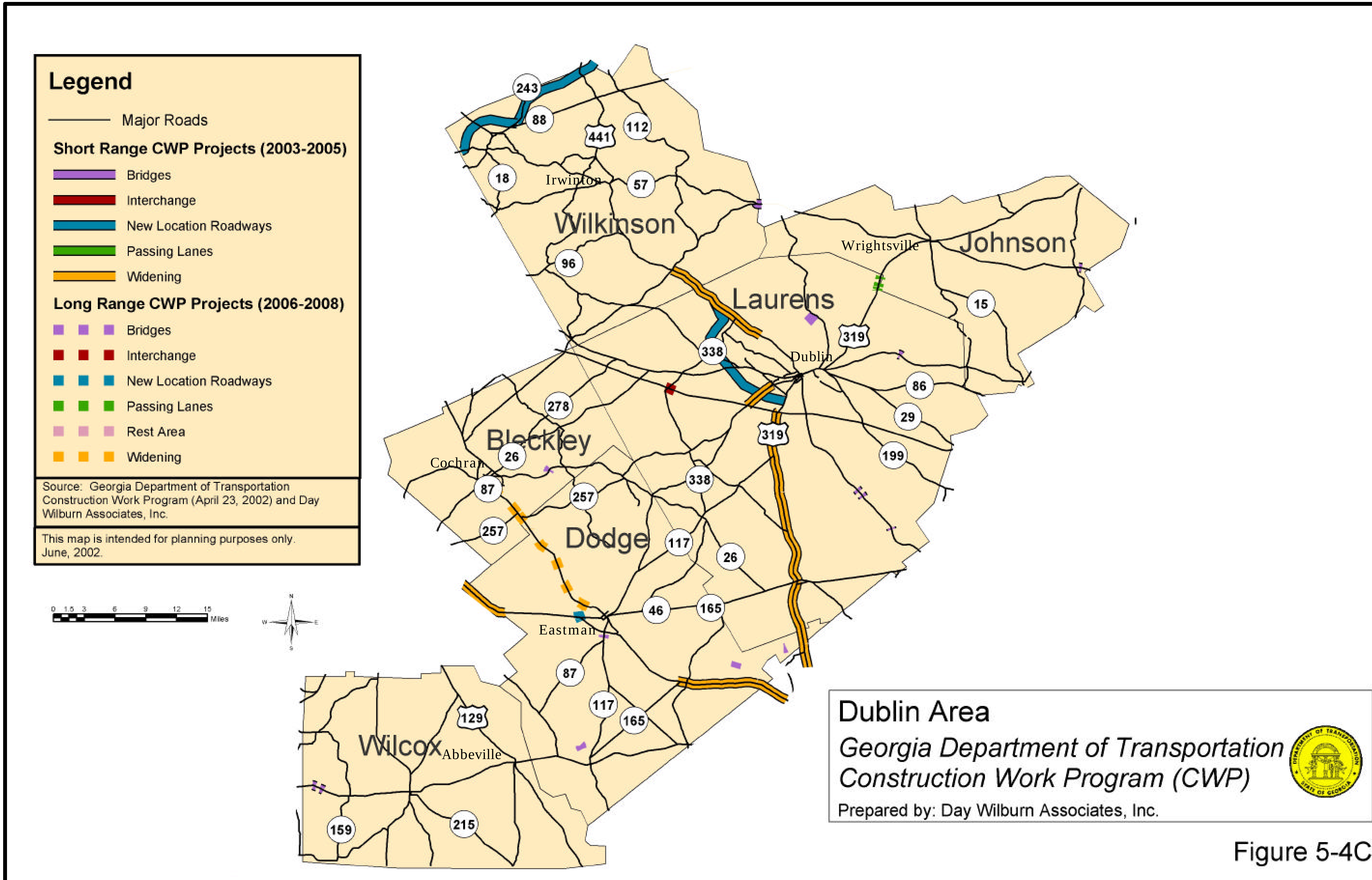
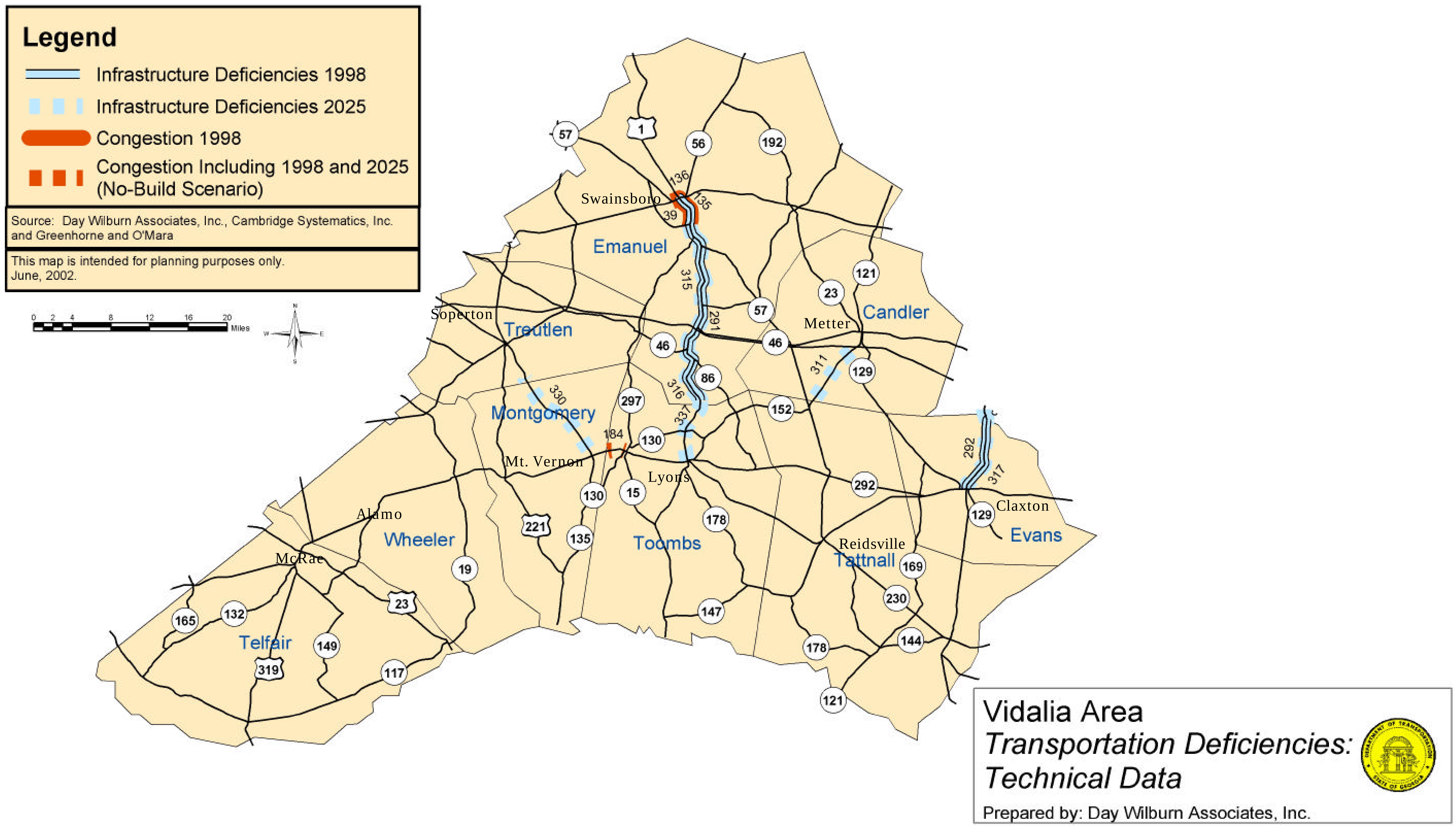

Legend
Major Roads
Short Range CWP Projects (2003-2005)
Bridges
Interchange
New Location Roadways
Passing Lanes
Widening
Long Range CWP Projects (2006-2008)
Bridges
Interchange
New Location Roadways
Passing Lanes
Rest Area
Widening
Source: Georgia Department of Transportation Construction Work Program (April 23, 2002) and Day Wilburn Associates, Inc.
This map is intended for planning purposes only. June, 2002.
0 1.5 3 6 9 12 15 Miles
N
W
E
S
Wilkinson
Irwinton
Johnson
Wrightsville
Laurens
Dublin
Bleckley
Cochran
Dodge
Eastman
Wilcox
Abbeville
243
88
441
112
18
57
96
15
319
338
86
29
278
26
199
87
257
117
46
165
129
159
215
Dublin Area
Georgia Department of Transportation Construction Work Program (CWP)
Prepared by: Day Wilburn Associates, Inc.

Figure 5-4C

Table 5-4

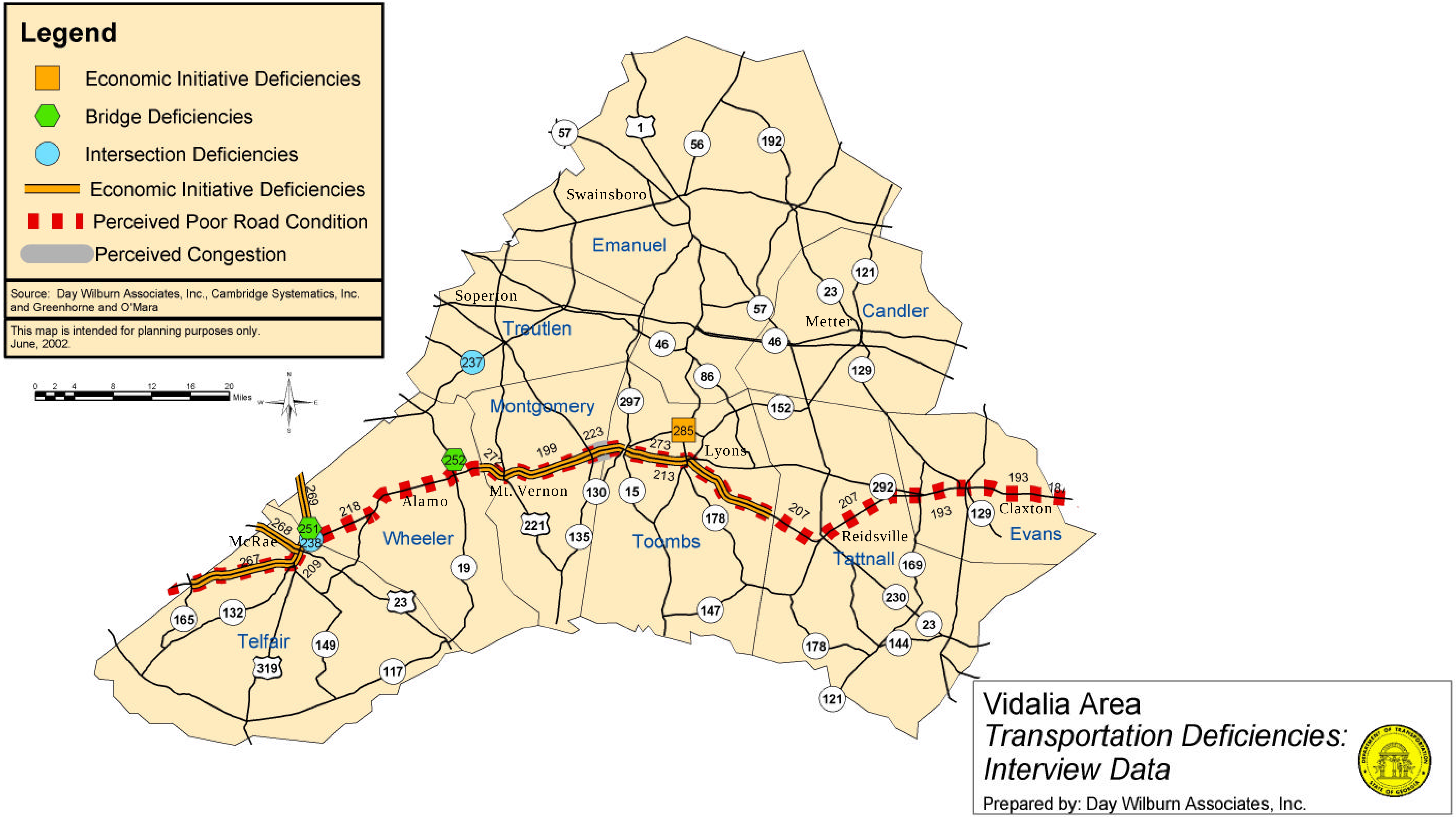
Deficiencies in the Central Georgia Corridor: Bleckley, Dodge, Johnson, Laurens, Wilcox, Wilkinson Counties

LOCATION				SOURCE OF INFORMATION			ISSUE CATEGORY			
MAP CODE	COUNTY	LOCATION	LOCATION DESCRIPTION	INTERVIEW	TECHNICAL	ECONOMIC DEVELOPMENT	CONGESTION/ CAPACITY	SAFETY	ECONOMIC DEVELOPMENT	ADDITIONAL INFORMATION
303	Bleckley	U129A	From Pulaski County Line to Cochran			X	X			1998 at-grade railroad crossing
304	Bleckley	U23	From Twiggs County Line to SR 26			X	X			1998 Shoulders
n / a	Bleckley	S26	GUM SWAMP CREEK, 6.2 MI NE OF COCHRAN			X				Bridge
132	Dodge	U23	Over .7 V/C 2025 - US 23 SE of Eastman		X		X			
192	Dodge	U280	US 280 through Dodge County - Poor Road Conditions	X			X			
n / a	Dodge	U280	US 280 has a speed limit of 25 MPH through town of Rhine			X	X			Bridge
50	Laurens	S257	Over .7 V/C 1998 - SR 257 SW of Dublin		X		X			
51	Laurens	U80	Over .7 V/C 1998 - US 80 Dublin		X		X			
152	Laurens	S257	Over .7 V/C 2025 - SR 257 SW of Dublin		X		X			
153	Laurens	U319	Over .7 V/C 2025 - US 319/US 441 South of Dublin		X		X			
154	Laurens	U80	Over .7 V/C 2025 - US 80 Dublin		X					
222	Laurens	U80	US 80 Dublin - Congestion	X				X		
239	Laurens	U319	SR 117 and US 441 South of Dublin - Bad Intersection	X			X			
240	Laurens	S257	I-16 and SR 257SW of Dublin - Bad Intersection	X			X			
280	Laurens	US 441	Industrial Blvd at US 441	X				X	X	
281	Laurens	US 80	Industrial Blvd at US 80	X				X	X	
295	Laurens	U80	US 80 from SR 257 west 2 miles			X	X			1998 Shoulders
295	Laurens	U80	US 80 from US 441 to 2 miles east of US 441			X	X			1998 Shoulders
296	Laurens	U319	US 319 from I-16 to just south of US 80			X	X			1998 Shoulders
296	Laurens	U319	US 319 from I-16 to 2 1/2 miles south of I-16			X	X			1998 Shoulders
324	Laurens	U319	US 319 from SR 117 to I-16			X	X			whitetopping
325	Laurens	U319	US 319 from US 80/SR 26 to Johnson County Line			X	X			whitetopping
326	Laurens	U80	SR 19/US 80 From SR 338 to US 441			X	X			whitetopping
327	Laurens	U441	US 441 from US 80 to SR 338 (GRIP)			X	X			whitetopping
328	Laurens	S19	SR 19 from I-16 to US 80			X	X			whitetopping
329	Laurens	S257	SR 257 from I-16 to US 80			X	X			whitetopping
n / a	Laurens	I16	I-16 and SR 257			X				Bridge
n / a	Laurens	I16	I-16 and US 319			X				Bridge
n / a	Laurens	S19	I-16 (SR 404), 3.8 MI S OF DUBLIN			X				Bridge
n / a	Laurens	S26	I-16 (SR 404), 2.1 MI SE OF MONTROSE			X				Bridge
n / a	Laurens	S26	OCONEE RIVER, NE DUBLIN CITY LIMITS			X				Bridge
n / a	Laurens	S26	OCONEE RIVER OVERFLOW, EAST DUBLIN			X				Bridge
n / a	Laurens	S26	INDIAN BRANCH, 5.2 MI SE OF BREWTON			X				
n / a	Laurens	S31	I-16 (SR 404), 4 MI S OF DUBLIN			X				
219	Wilcox	U280	US 280 through Wilcox County - Poor Road Conditions	X				X		
n / a	Wilcox	U280	US 280 at-grade railroad crossing east of Rochelle			X	X			
241	Wilkinson	U441	US 441 and SR 57 - Bad Intersection in Irwinton	X				X		



Legend
Infrastructure Deficiencies 1998
Infrastructure Deficiencies 2025
Congestion 1998
Congestion Including 1998 and 2025 (No-Build Scenario)
Source: Day Wilburn Associates, Inc., Cambridge Systematics, Inc. and Greenhorne and O'Mara
This map is intended for planning purposes only.
June, 2002.
Miles
Swainsboro
Emanuel
Soperton
Treutlen
Metter
Candler
Montgomery
Mt. Vernon
Lyons
Alamo
Wheeler
McRae
Toombs
Reidsville
Tattnall
Claxton
Evans
Telfair
Vidalia Area
Transportation Deficiencies: Technical Data
Prepared by: Day Wilburn Associates, Inc.

Figure 5-5A



Legend
Economic Initiative Deficiencies
Bridge Deficiencies
Intersection Deficiencies
Economic Initiative Deficiencies
Perceived Poor Road Condition
Perceived Congestion
Source: Day Wilburn Associates, Inc., Cambridge Systematics, Inc. and Greenhorne and O'Mara
This map is intended for planning purposes only.
June, 2002.
Miles
Swainsboro
Emanuel
Soperton
Treutlen
Metter
Candler
Montgomery
Lyons
Mt. Vernon
Alamo
Wheeler
McRae
Telfair
Toombs
Reidsville
Tattnall
Claxton
Evans
Vidalia Area
Transportation Deficiencies: Interview Data
Prepared by: Day Wilburn Associates, Inc.

Figure 5-5B

Vidalia Area

Georgia Department of Transportation
Construction Work Program (CWP)

Prepared by: Day Wilburn Associates, Inc.

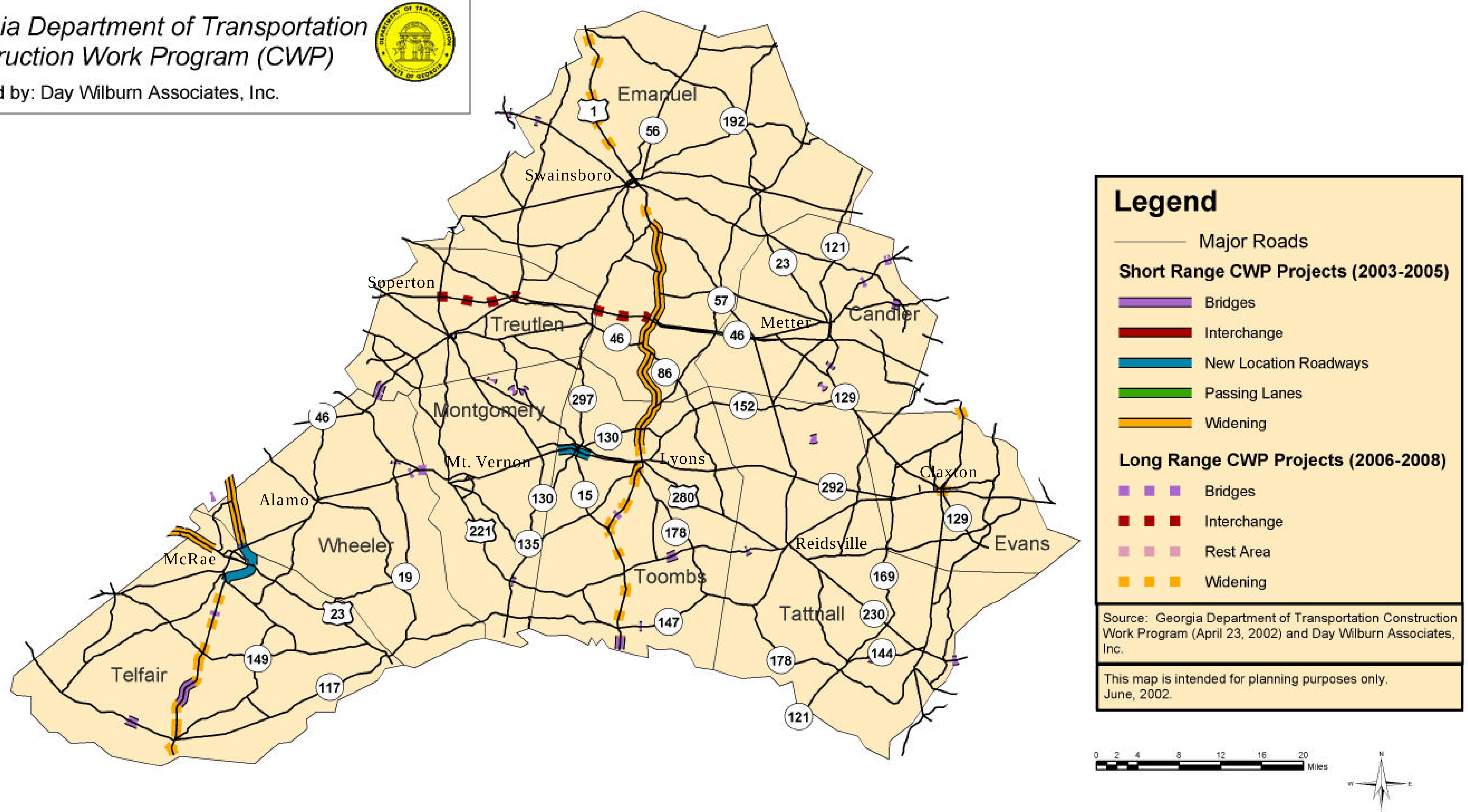


Figure 5-5C

Table 5-5

Deficiencies in the Central Georgia Corridor: Candler, Emanuel, Evans, Montgomery, Tattnall, Telfair, Toombs, Truetlen, Wheeler Counties

LOCATION				SOURCE OF INFORMATION			ISSUE CATEGORY			
MAP CODE	COUNTY	LOCATION	LOCATION DESCRIPTION	INTERVIEW	TECHNICAL	ECONOMIC DEVELOPMENT	CONGESTION/ CAPACITY	SAFETY	ECONOMIC DEVELOPMENT	ADDITIONAL INFORMATION
311	Candler	S23	SR 23 fro I-16 to Tattnall County Line			X	X			
n/a	Candler	I16	I-16 and SR 23			X				Bridge
n/a	Candler	S129	I-16 (SR 404), 1.6 MI S OF METTER			X				Whitetopping
n/a	Candler	S23	I-16 (SR 404), 1.6 MI S OF METTER			X				Bridge
n/a	Candler	S404	SR 57, 6.2 MI SW OF METTER			X				Bridge
n/a	Candler	S404	CR 49, 7.5 MI SE OF METTER			X				
39	Emanuel	U1	Over .7 V/C 1998 - US 1 Swainsboro		X		X			
135	Emanuel	U1	Over .7 V/C 2025 - US 1 Swainsboro		X		X			
136	Emanuel	U80	Over .7 V/C 2025 - US 80 Swainsboro		X		X			
291	Emanuel	U1	US 1 at Southern Railway			X	X			1998 at-grade railroad crossing
315	Emanuel	U1	US 1 from I-16 to US 80			X	X			Bridge
316	Emanuel	U1	US 1 from I-16 to Toombs County Line			X	X			Bridge
n/a	Emanuel	I16	I-16 and US 1			X				Bridge
n/a	Emanuel	S404	SR 4 (US 1), 2.8 MI N OF OAK PARK			X				Bridge
n/a	Emanuel	S404	SR 4 (US 1), 3 MI N OF OAK PARK			X				Bridge
n/a	Emanuel	S297	I-16 (SR 404), 6 MI NW OF OAK PARK			X				Bridge
193	Evans	U280	US 280 through Evans County - Poor Road Conditions	X			X			
292	Evans	U25	US 25 from Bulloch County Line to 8 miles south			X	X			1998 at-grade railroad crossing
317	Evans	U25	Bulloch County Line to Claxton			X	X			Bridge
n/a	Evans	U280	US 280 at-grade railroad crossing in Bellville			X	X			Bridge
n/a	Evans	U280	US 280 at SR 22			X	X			Bridge
n/a	Evans	U280	US280 from US 25 to Dean Road			X	X			Bridge
199	Montgomery	U280	US 280 through Montgomery County - Poor Road Conditions	X			X			
223	Montgomery	U280	US 280 SR 15 to East County Line - Congestion	X				X		
272	Montgomery	US 280	US 280 in Montgomery	X					X	
330	Montgomery	S15	SR 15 from Treutlen County Line to Vidalia			X	X			whitetopping
207	Tattnall	U280	US 280 through Tattnall County - Poor Road Conditions	X			X			
n/a	Tattnall	U280	US 280 from Griffin Road to SR 56 in Reidsville			X	X			
209	Telfair	U280	US 280 through Telfair County - Poor Road Conditions	X			X			
267	Telfair	US 280	US 280	X			X	X	X	
268	Telfair	US 341	I 16 at US 341	X					X	
269	Telfair	US 441	US 441 from McRae to Dublin	X					X	
n/a	Telfair	U280	US 280 at Sugar Creek			X	X			
n/a	Telfair	U280	US 280 from US 441 to US 341 and through Downtown McRae			X	X			
184	Toombs	U280	Over .7 V/C 2025 - US 280 West of Vidalia		X			X		
213	Toombs	U280	US 280 through Toombs County - Poor Road Conditions	X			X			
273	Toombs	US 280	US 280 in Toombs	X					X	
285	Toombs	US 1	Intersection of US 1 SR 130	X					X	
337	Toombs	U1	US 1 Emanuel County Line to US 280			X	X			Bridge
n/a	Toombs	U280	US 280 from Brinson St. to Harris Ind. Blvd. In Vadalia			X	X			
n/a	Toombs	U280	US 280 at Darden Street			X		X		
n/a	Toombs	U280	US 280 at Moseley Street			X		X		
n/a	Toombs	U280	US 280 at Green Street			X		X		
n/a	Toombs	U280	US 280 at Truman Street			X		X		
n/a	Toombs	U280	US 280 at Queen Street			X		X		
n/a	Toombs	U280	US 280 at Leslie Street			X		X		
n/a	Toombs	U280	US 280 at Smith Street			X		X		
n/a	Toombs	U280	US 280 at Slayton Street			X		X		
n/a	Toombs	U280	US 280 at Broadfoor Blvd.			X		X		
n/a	Toombs	U280	US 280 at Main St./Rigsbee Drive			X		X		
n/a	Toombs	U280	US 280 at Maple Drive			X		X		
n/a	Toombs	U280	US 280 at McNatt Street			X		X		
n/a	Toombs	U280	US 280 from Bank Avenue to 2000 feet east of US 1/SR 4 in Lyons			X	X			

Table 5-5

Deficiencies in the Central Georgia Corridor: Candler, Emanuel, Evans, Montgomery, Tattnall, Telfair, Toombs, Truetlen, Wheeler Counties

LOCATION				SOURCE OF INFORMATION			ISSUE CATEGORY			
MAP CODE	COUNTY	LOCATION	LOCATION DESCRIPTION	INTERVIEW	TECHNICAL	ECONOMIC DEVELOPMENT	CONGESTION/ CAPACITY	SAFETY	ECONOMIC DEVELOPMENT	ADDITIONAL INFORMATION
237	Treutlen	S199	SR 199 and SR 46 South of Lothair - Bad Intersection	X			X			
n/a	Treutlen	S15	SR 15 from I-16 to Montgomery Couty Line			X	X			Bridge
n/a	Treutlen	S404	CR 166, 3.3 MI NE OF SOPERTON			X				
n/a	Treutlen	S404	SR 56 (US 221), 6.8 MI NE OF SOPERTON			X				
n/a	Treutlen	S15	I-16 (SR 404), 3 MI N OF SOPERTON			X				
n/a	Treutlen	S29	I-16 (SR 404), 6 MI NW OF SOPERTON			X				
n/a	Treutlen	S29	SR 29, 2.8 MI NW OF SOPERTON			X				
218	Wheeler	U280	US 280 through Wheeler County - Poor Road Conditions	X				X		
238	Wheeler	U280	US 441 and US 280 - Bad Intersection	X				X		
251	Wheeler	U319	US 441 north of US 280 - Bad Bridge	X				X		
252	Wheeler	S19	SR 19 north of Glenwood - Bad Bridge	X			X			
n/a	Wheeler	U280	US 280 through downtown Alamo			X	X			

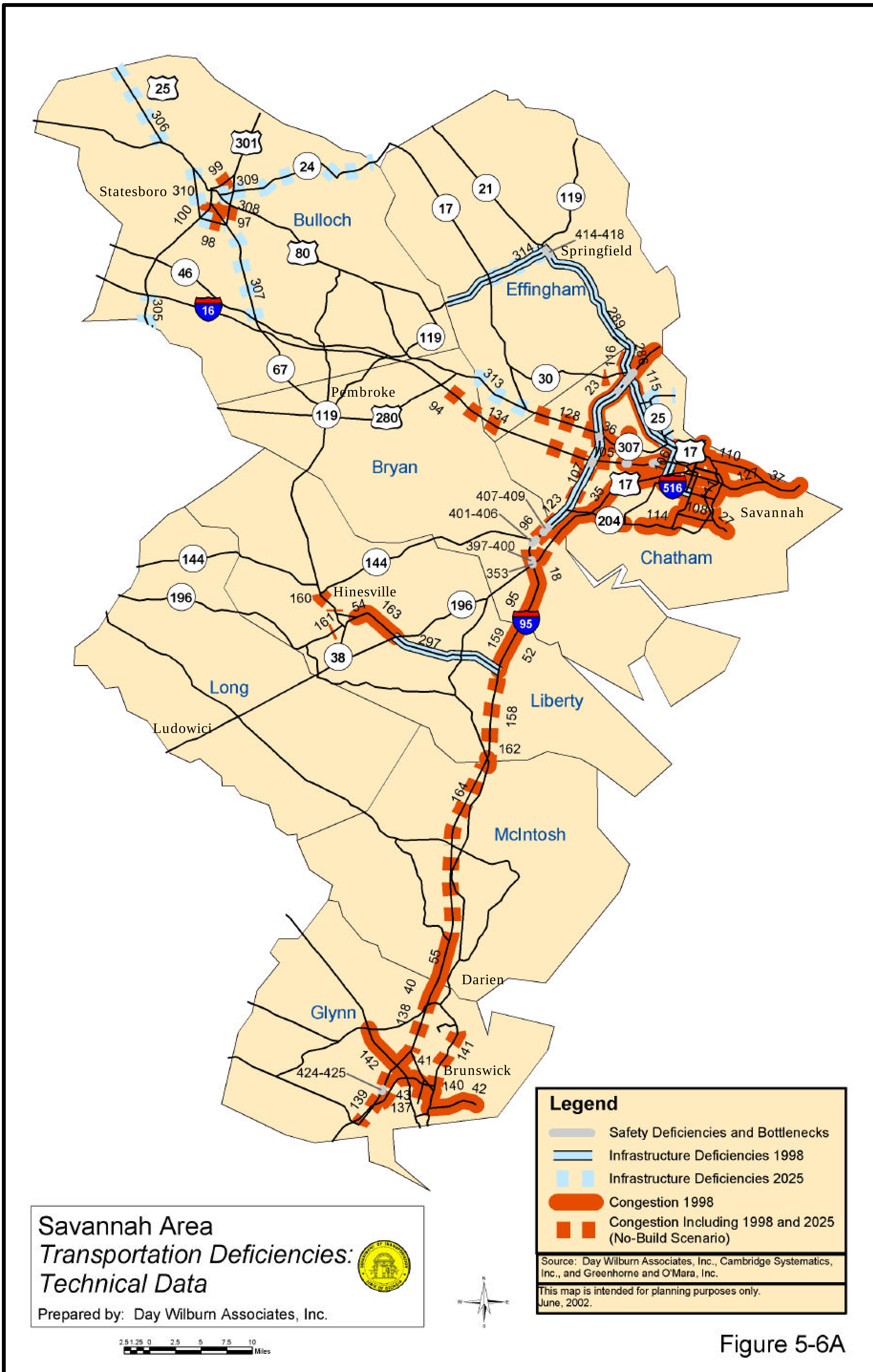
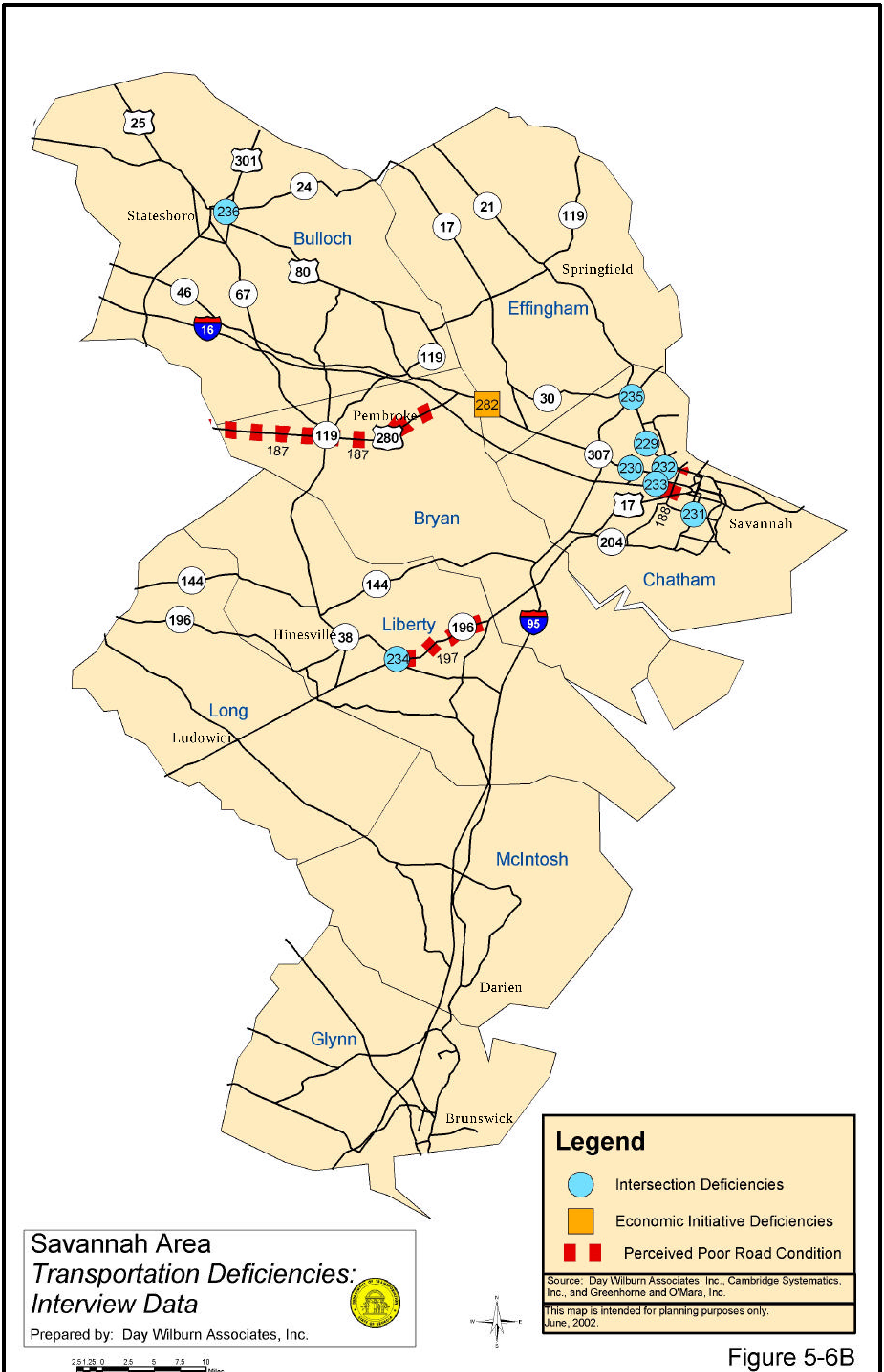

Savannah Area
Transportation Deficiencies: Technical Data
Prepared by: Day Wilburn Associates, Inc.
Legend
Safety Deficiencies and Bottlenecks
Infrastructure Deficiencies 1998
Infrastructure Deficiencies 2025
Congestion 1998
Congestion Including 1998 and 2025 (No-Build Scenario)
Source: Day Wilburn Associates, Inc., Cambridge Systematics, Inc., and Greenhorne and O'Mara, Inc.
This map is intended for planning purposes only.
June, 2002.
Miles
Bulloch
Effingham
Bryan
Chatham
Liberty
Long
McIntosh
Glynn
Statesboro
Springfield
Pembroke
Savannah
Hinesville
Ludowici
Darien
Brunswick
414-418
407-409
401-406
397-400
353
424-425

Figure 5-6A



Statesboro
Bulloch
Effingham
Springfield
Pembroke
Bryan
Savannah
Chatham
Liberty
Hinesville
Long
Ludowici
McIntosh
Darien
Glynn
Brunswick
Legend
Intersection Deficiencies
Economic Initiative Deficiencies
Perceived Poor Road Condition
Source: Day Wilburn Associates, Inc., Cambridge Systematics, Inc., and Greenhorne and O'Mara, Inc.
This map is intended for planning purposes only.
June, 2002.
Savannah Area
Transportation Deficiencies:
Interview Data
Prepared by: Day Wilburn Associates, Inc.
Miles

Figure 5-6B

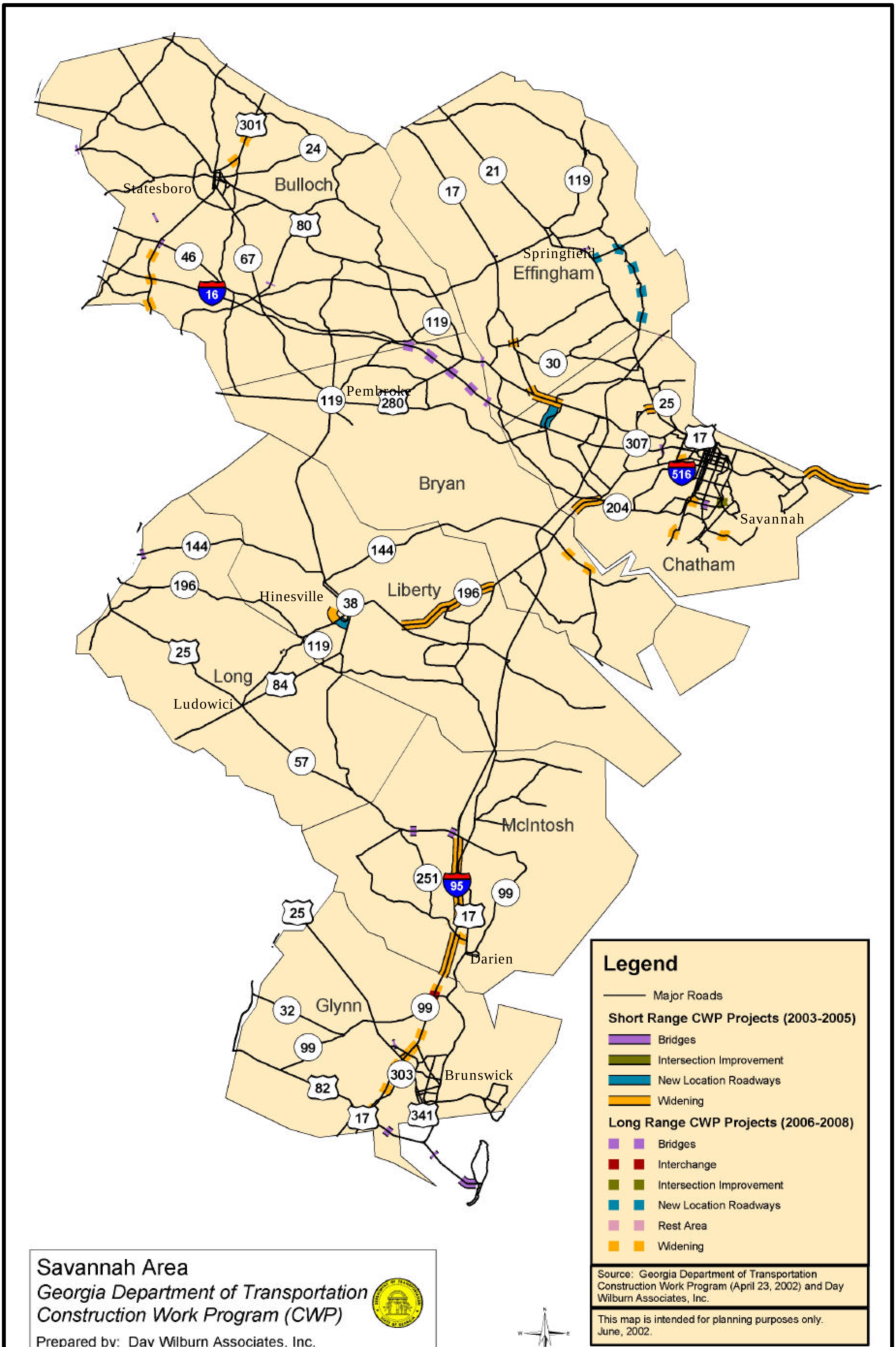
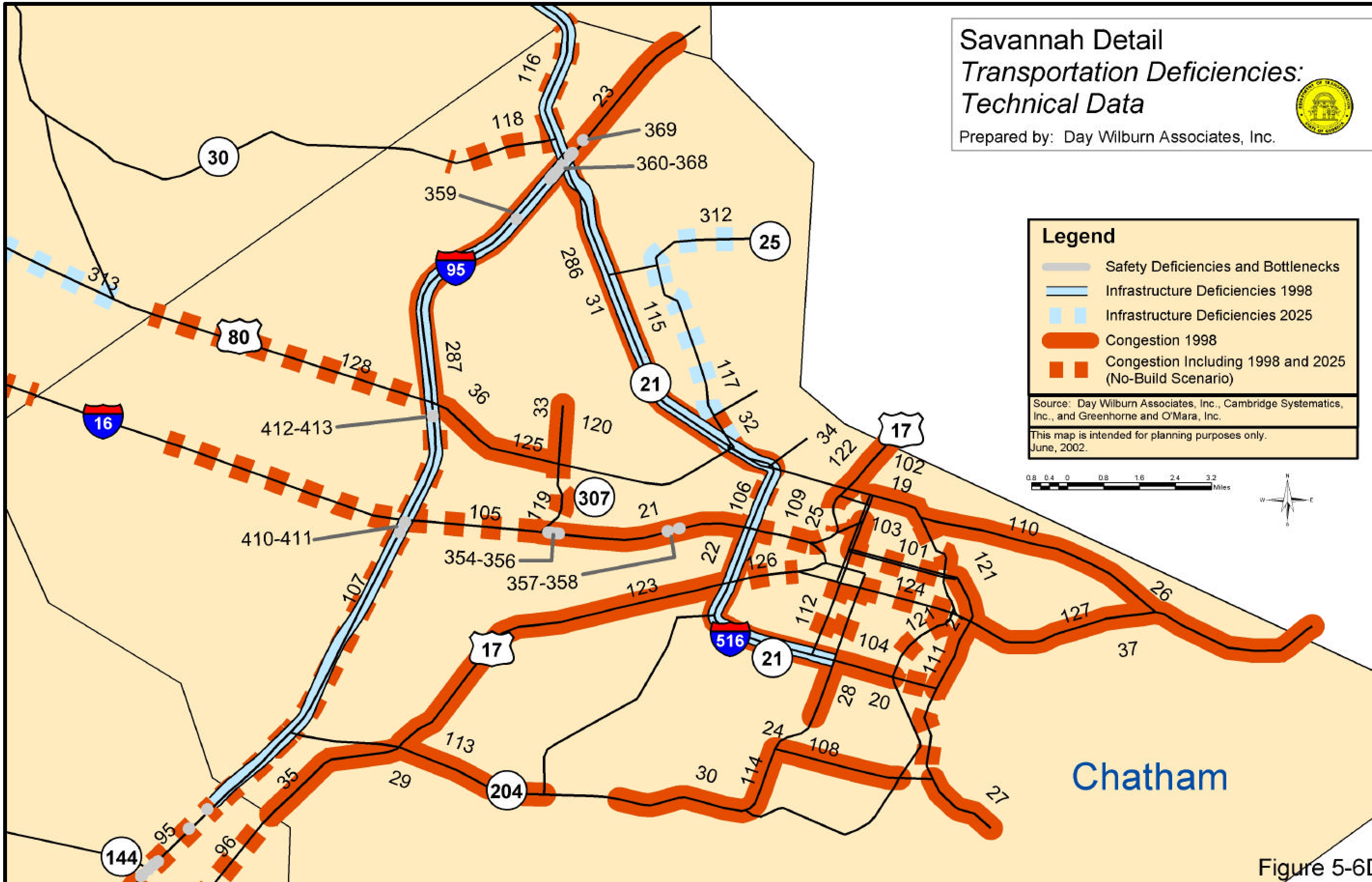

Savannah Area
Georgia Department of Transportation
Construction Work Program (CWP)
Prepared by: Day Wilburn Associates, Inc.
Legend
Major Roads
Short Range CWP Projects (2003-2005)
Bridges
Intersection Improvement
New Location Roadways
Widening
Long Range CWP Projects (2006-2008)
Bridges
Interchange
Intersection Improvement
New Location Roadways
Rest Area
Widening
Source: Georgia Department of Transportation Construction Work Program (April 23, 2002) and Day Wilburn Associates, Inc.
This map is intended for planning purposes only. June, 2002.
Miles
Bulloch
Statesboro
Effingham
Springfield
Bryan
Pembroke
Chatham
Savannah
Liberty
Hinesville
Long
Ludowici
McIntosh
Darien
Glynn
Brunswick

Figure 5-6C



Savannah Detail
Transportation Deficiencies: Technical Data
Prepared by: Day Wilburn Associates, Inc.
Legend
Safety Deficiencies and Bottlenecks
Infrastructure Deficiencies 1998
Infrastructure Deficiencies 2025
Congestion 1998
Congestion Including 1998 and 2025 (No-Build Scenario)
Source: Day Wilburn Associates, Inc., Cambridge Systematics, Inc., and Greenhorne and O'Mara, Inc.
This map is intended for planning purposes only.
June, 2002.
Miles
Chatham

Figure 5-6D

Table 5-6

Deficiencies in the Central Georgia Corridor: Bryan, Bulloch, Chatham, Effingham, Glynn, Liberty, Long, McIntosh Counties

LOCATION				SOURCE OF INFORMATION			ISSUE CATEGORY			
MAP CODE	COUNTY	LOCATION	LOCATION DESCRIPTION	INTERVIEW	TECHNICAL	ECONOMIC DEVELOPMENT	CONGESTION/ CAPACITY	SAFETY	ECONOMIC DEVELOPMENT	ADDITIONAL INFORMATION
18	Bryan	I95	Over .7 V/C 1998 - I-95 South County Line to US 17		X		X			
94	Bryan	I16	Over .7 V/C 2025 - I-16 East County Line to US 280		X		X			
95	Bryan	I95	Over .7 V/C 2025 - I-95 through Bryan County		X		X			
96	Bryan	U17	Over .7 V/C 2025 - US 17 North of I-95		X		X			
187	Bryan	U280	US 280 West County Line to I-16 - Poor Road Conditions	X				X		
353	Bryan	I95	I95 @ mpt 4.84 at the intersection of I95 & U17		X			X		
397	Bryan	I95	I95 @ mpt 7.32 near the intersection of US17 & I95		X			X		
398	Bryan	I95	I95 @ mpt 7.63 near the intersection of US17 & I95		X			X		
401	Bryan	I95	I95 @ mpt 9.41 near the intersection of I95 and SR144		X			X		
402	Bryan	I95	I95 @ mpt 9.42 near the intersection of I95 and SR144		X			X		
403	Bryan	I95	I95 @ mpt 9.61 near the intersection of I95 and SR144		X			X		
404	Bryan	I95	I95 @ mpt 9.75 near the intersection of I95 and SR144		X			X		
405	Bryan	I95	I95 @ mpt 9.80 near the intersection of I95 and SR144		X			X		
406	Bryan	I95	I95 @ mpt 9.87 near the intersection of I95 and SR144		X			X		
407	Bryan	I95	I95 @ mpt 10.82 between SR144 and the Bryan/Chatham County Line		X			X		
408	Bryan	I95	I95 @ mpt 10.89 between SR144 and the Bryan/Chatham County Line		X			X		
409	Bryan	I95	I95 @ mpt 11.44 between SR144 and the Bryan/Chatham County Line		X			X		
n/a	Bryan	S67	SR 67 at Wilmington Terminal Railroad Inc.			X				Bridge
n/a	Bryan	S30	I-16 (SR 404), 1.5 MI SW OF JCT SR 26			X				Bridge
97	Bulloch	S67	Over .7 V/C 2025 - SR 67 Statesboro		X			X		
98	Bulloch	U301BY	Over .7 V/C 2025 - US 301 Bypass of Statesboro		X					
99	Bulloch	U301	Over .7 V/C 2025 - US 301 North of Statesboro		X			X		
100	Bulloch	U25	Over .7 V/C 2025 - US 301/US 25 Statesboro		X		X			
236	Bulloch	S24	Statesboro Bypass and SR 24 - Bad Intersection	X			X			
291	Bulloch	U301	US 301 at NS Railroad			X	X			1998 at-grade railroad crossing
305	Bulloch	U25	I-16 to Evans County Line			X	X			1998 at-grade railroad crossing
306	Bulloch	U25	US 25 from Jenkins County Line to US 80			X	X			Bridge
307	Bulloch	S67	SR 67 from I-16 to US 301 Bypass			X	X			
308	Bulloch	U301BY	US 301 Bypass from US 25 to SR 67			X	X			Bridge
309	Bulloch	S24	SR 24 from US 80/SR 26 to Screven County Line			X	X			
310	Bulloch	U25BY	SR 25 Bypass			X	X			
n/a	Bulloch	I16	I-16 and US 25			X				Bridge
n/a	Bulloch	I16	I-16 and SR 67			X				Bridge
n/a	Bulloch	S67	SR 67 at NS Railroad			X				Bridge
n/a	Bulloch	S67	SR 67 from US 301 Bypass to US 25			X				Bridge
n/a	Bulloch	S73	SR 73 at NS Railroad			X				Bridge
n/a	Bulloch	U25	US 25 at NS Railroad			X				Bridge
n/a	Bulloch	U25	US 25 from Evans County Line to I-16			X				Bridge
n/a	Bulloch	U25	US 25 from I-16 to SR 67			X				Bridge
n/a	Bulloch	U301BY	US 301 Bypass from SR 67 to US 25			X	X			Bridge
n/a	Bulloch	S119	I-16 (SR 404), 13.3 MI SE OF BROOKLET			X				Bridge
n/a	Bulloch	S119	OGEECHEE RIVER, 13.7 MI SE OF BROOKLET			X				Bridge
n/a	Bulloch	S24	FLOYD BRANCH, 5 MI E OF STATESBORO			X				Bridge
n/a	Bulloch	S24	SPRING CREEK, 8 MI E OF STATESBORO			X				Bridge
n/a	Bulloch	S24	OGEECHEE RIVER, 13.7 MI SE OF BROOKLET			X				Bridge
n/a	Bulloch	S24	MILL CREEK, 4.2 MI E OF STATESBORO			X				Bridge
n/a	Bulloch	S404	FAS 733 DAISY ROAD, 9 MI SW OF BROOKLET			X				Bridge
n/a	Bulloch	S67	I-16 (SR 404), 9 MI SW OF BROOKLET			X				
n/a	Bulloch	S73	I-16 (SR 404), 3.8 MI SE OF REGISTER			X				Bridge
19	Chatham	LBAY-	Over .7 V/C 1998 - Bay Street Savannah		X		X			
20	Chatham	LDeRen	Over .7 V/C 1998 - De Renne Avenue Savannah		X		X			
21	Chatham	I16	Over .7 V/C 1998 - I-16 West of I-95 to Savannah		X		X			
22	Chatham	I516	Over .7 V/C 1998 - I-516		X		X			

Table 5-6

Deficiencies in the Central Georgia Corridor: Bryan, Bulloch, Chatham, Effingham, Glynn, Liberty, Long, McIntosh Counties

LOCATION				SOURCE OF INFORMATION			ISSUE CATEGORY			
MAP CODE	COUNTY	LOCATION	LOCATION DESCRIPTION	INTERVIEW	TECHNICAL	ECONOMIC DEVELOPMENT	CONGESTION/ CAPACITY	SAFETY	ECONOMIC DEVELOPMENT	ADDITIONAL INFORMATION
23	Chatham	I95	Over .7 V/C 1998 - I-95 through Chatham County		X		X			
24	Chatham	S204SP	Over .7 V/C 1998 - Montgomery Rd.		X		X			
25	Chatham	Lmontg	Over .7 V/C 1998 - Montgomery St. Savannah		X		X			
26	Chatham	Lpresi	Over .7 V/C 1998 - President Street		X		X			
27	Chatham	Lskida	Over .7 V/C 1998 - Skidaway Rd.		X		X			
28	Chatham	S204	Over .7 V/C 1998 - SR 204 (Abercorn)		X		X			
29	Chatham	S204	Over .7 V/C 1998 - SR 204 btwn. US 17 and Veterans Parkway		X		X			
30	Chatham	S204	Over .7 V/C 1998 - SR 204 btwn. Veterans Parkway and Montgomery Rd.		X		X			
31	Chatham	S21	Over .7 V/C 1998 - SR 21 btwn. I-95 and I-516		X		X			
32	Chatham	S25	Over .7 V/C 1998 - SR 25 North of SR 21		X		X			
33	Chatham	S307	Over .7 V/C 1998 - SR 307 North of US 80		X		X			
34	Chatham	U17	Over .7 V/C 1998 - US 17 from I-16 to S.C.		X		X			
35	Chatham	U17	Over .7 V/C 1998 - US 17 South County Line to I-516		X		X			
36	Chatham	U80	Over .7 V/C 1998 - US 80 btwn. I-95 and SR 307		X		X			
37	Chatham	U80	Over .7 V/C 1998 - US 80 East of Skidaway		X		X			
101	Chatham	Lander	Over .7 V/C 2025 - Anderson St. Savannah		X		X			
102	Chatham	LBAY-	Over .7 V/C 2025 - Bay Street Savannah		X		X			
103	Chatham	LBROAD	Over .7 V/C 2025 - Broad St. Savannah		X		X			
104	Chatham	LDeRen	Over .7 V/C 2025 - De Renne Avenue Savannah		X		X			
105	Chatham	I16	Over .7 V/C 2025 - I-16 West of I-95 to Savannah		X		X			
106	Chatham	I516	Over .7 V/C 2025 - I-516		X		X			
107	Chatham	I95	Over .7 V/C 2025 - I-95 through Chatham County		X			X		
108	Chatham	S204SP	Over .7 V/C 2025 - Montgomery Rd.		X		X			
109	Chatham	Lmontg	Over .7 V/C 2025 - Montgomery St. Savannah		X		X			
110	Chatham	Lpresi	Over .7 V/C 2025 - President Street		X		X			
111	Chatham	Lskida	Over .7 V/C 2025 - Skidaway Rd.		X		X			
112	Chatham	S204	Over .7 V/C 2025 - SR 204 (Abercorn)		X			X		
113	Chatham	S204	Over .7 V/C 2025 - SR 204 btwn. US 17 and Veterans Parkway		X			X		
114	Chatham	S204	Over .7 V/C 2025 - SR 204 btwn. Veterans Parkway and Montgomery Rd.		X		X			
115	Chatham	S21	Over .7 V/C 2025 - SR 21 btwn. I-95 and I-516		X		X			
116	Chatham	S21	Over .7 V/C 2025 - SR 21 North of I-95		X			X		
117	Chatham	S25	Over .7 V/C 2025 - SR 25 North of SR 21		X		X			
118	Chatham	S30	Over .7 V/C 2025 - SR 30 West of I-95		X		X			
119	Chatham	S307	Over .7 V/C 2025 - SR 307 btwn. I-16 and US 80		X		X			
120	Chatham	S307	Over .7 V/C 2025 - SR 307 North of US 80		X			X		
121	Chatham	Ltruma	Over .7 V/C 2025 - Truman Parkway		X		X			
122	Chatham	U17	Over .7 V/C 2025 - US 17 from I-16 to S.C.		X		X			
123	Chatham	U17	Over .7 V/C 2025 - US 17 South County Line to I-516		X		X			
124	Chatham	U80	Over .7 V/C 2025 - US 80 btwn. Abercorn and Truman Pkwy.		X		X			
125	Chatham	U80	Over .7 V/C 2025 - US 80 btwn. I-95 and SR 307		X		X			
126	Chatham	U80	Over .7 V/C 2025 - US 80 East of I-516		X			X		
127	Chatham	U80	Over .7 V/C 2025 - US 80 East of Skidaway		X					
128	Chatham	U80	Over .7 V/C 2025 - US 80 West County Line to I-95		X		X			
188	Chatham	I516	I-516 Poor Road Conditions	X			X			
229	Chatham	S307	SR 307 and Commerce - Bad Intersection	X			X			
230	Chatham	S307	US 80 and SR 307 - Bad Intersection	X				X		
231	Chatham	S204	I-516 and Abercorn - Bad Intersection	X			X			
232	Chatham	U80	Alfred Street and US 80 - Bad Intersection	X				X		
233	Chatham	I16	Chatham Parkway and I-16 - Bad Intersection	X			X			
235	Chatham	S21	SR 21 and I-95 - Bad Intersection	X			X			
286	Chatham	I516	I-516 from SR 21 to the SW Bypass (Veterans Pkwy.)			X	X			1998 Shoulders
286	Chatham	S21	SR 21 from US 80 to SR 307			X	X			1998 Shoulders
286	Chatham	S21	SR 21 between SR 307 and Effingham County Line			X	X			1998 Shoulders

Table 5-6

Deficiencies in the Central Georgia Corridor: Bryan, Bulloch, Chatham, Effingham, Glynn, Liberty, Long, McIntosh Counties

LOCATION				SOURCE OF INFORMATION			ISSUE CATEGORY			
MAP CODE	COUNTY	LOCATION	LOCATION DESCRIPTION	INTERVIEW	TECHNICAL	ECONOMIC DEVELOPMENT	CONGESTION/ CAPACITY	SAFETY	ECONOMIC DEVELOPMENT	ADDITIONAL INFORMATION
286	Chatham	S21	SR 21 from SR 204 to I-516			X	X			1998 Shoulders
287	Chatham	I95	I-95 between US 80 and SR 21			X	X			1998 Shoulders
312	Chatham	S25	SR 25 from SR 21 to South Carolina State Line			X	X			
354	Chatham	I95	I95 @ mpt 7.24 at the intersection of I95 & U17		X			X		
355	Chatham	I16	I16 @ mpt 10.09 Near the intersection of I16 & SR307		X			X		
356	Chatham	I16	I16 @ mpt 10.24 near the intersection of I16 & SR307		X			X		
357	Chatham	I16	I16 @ mpt 10.25 near the intersection of I16 & SR307		X			X		
358	Chatham	I16	I16 @ mpt 12.34 West of the intersection of I16 & I516		X			X		
359	Chatham	I16	I16 @ mpt 12.56 West of the intersection of I16 & I516		X			X		
360	Chatham	I95	I95 @ mpt 15.19 SW of Meinhard Rd		X			X		
365	Chatham	I95	I95 @ mpt 16.42 SW of intersection of I95 & SR21		X			X		
366	Chatham	I95	I95 @ mpt 16.69 near intersection of I95 & SR21		X			X		
368	Chatham	I95	I95 @ mpt 17.0 @ intersection of SR 21 & I95		X			X		
369	Chatham	I95	I95 @ mpt 17.69 near intersection of SR21 & I95		X			X		
410	Chatham	I95	I95 @ mpt 7.71 near the intersection of I95 & I16		X			X		
411	Chatham	I95	I95 @ mpt 7.42 near the intersection of I95 & I16		X			X		
413	Chatham	I95	I95 @ mpt 9.94 near the intersection of I95 & U80		X			X		
n/a	Chatham	U17	US 17 from SR 25C to South Carolina State Line			X	X			Bridge
n/a	Chatham	I16	I-16 and I-95			X				
n/a	Chatham	I16	I-16 and I-516			X				Bridge
n/a	Chatham	I16	I-16 and SR 307			X				Bridge
n/a	Chatham	I516	I-516 and SR 25C			X				Bridge
n/a	Chatham	I95	I-95 and US 80			X				Bridge
n/a	Chatham	I-95	I-95 and SR 21			X				Bridge
n/a	Chatham	S21	SR 21 and SR 204			X				Bridge
n/a	Chatham	S21	SR 21 and SR 307			X				Bridge
n/a	Chatham	S25	SR 25 and SR 307			X				Bridge
n/a	Chatham	U17	US 17 and SR 25C			X				Bridge
n/a	Chatham	U80	US 80 and SR 21			X				Bridge
n/a	Chatham	U80	US 80 from Effingham County to SR 25C			X				Bridge
n/a	Chatham	S21	SR 21, PORT WENTWORTH - W SECT.			X				Bridge
n/a	Chatham	S21	SR 21, N SECTION OF GARDEN CITY			X				Bridge
n/a	Chatham	S25	SAVANNAH RIVER, 1 MI NE OF PORT WENTWORT			X				Bridge
n/a	Chatham	S26	CSX RAILROAD (641173J), W SECTION OF SAVANNAH			X				Bridge
n/a	Chatham	S26	RAILROAD REMOVED, IN W SECTION OF SAVANNAH			X				
n/a	Chatham	S26	CSX RAILROAD (641183P), IN GARDEN CITY			X				
n/a	Chatham	S26	LAZERATTO CREEK, 10 MI SE OF SAVANNAH			X				Full Depth PCC Pavement
n/a	Chatham	S30	CSX RAILROAD, 1.5 MI W INT I-95 & SR 21			X				Full Depth PCC Pavement
n/a	Chatham	S307	I-16 (SR 404), 5 MI W OF SAVANNAH			X				Bridge
n/a	Chatham	S404	CR 674- CSX RAILROAD, 2 MI W OF SAVANNAH			X				Bridge
n/a	Chatham	S404	CR 654 TREMONT AVE- CSX, .25 MI W OF SAVANNAH			X				Bridge
n/a	Chatham	S404	M-4079 GWINNETT STREET, W CITY LIMITS OF SAVANNAH			X				Bridge
n/a	Chatham	S404	M-4052- CS 1506 W BROAD, IN CITY LIMITS SAVANNAH			X				Bridge
n/a	Chatham	S405	SR 204, 9 MI SW OF SAVANNAH			X				whitetopping
n/a	Chatham	S405	I-16 (SR 404), 7 MI W OF SAVANNAH			X				whitetopping
n/a	Chatham	S405	CSX RAILROAD, 10 MI NE OF SAVANNAH			X				Bridge
n/a	Chatham	S405	SR 26 (US 80), 10.5 MI NW OF SAVANNAH			X				Bridge
n/a	Chatham	S405	AUGUSTINE CREEK, 1.6 MI S OF JCT SR 21			X				Bridge
n/a	Chatham	S405	CSX RAILROAD, 1.4 MI S OF JCT SR 21			X				Bridge
n/a	Chatham	S405	CSX RAILROAD, 1.3 MI S OF JCT SR 21			X				whitetopping
n/a	Chatham	S405	SR 21, INT I-95 & SR 21			X				whitetopping
134	Effingham	I16	Over .7 V/C 2025 - I-16 through Effingham County		X		X			
282	Effingham	US 80	Bridge over Ogeechee River at US 80	X			X	X	X	

Table 5-6

Deficiencies in the Central Georgia Corridor: Bryan, Bulloch, Chatham, Effingham, Glynn, Liberty, Long, McIntosh Counties

LOCATION				SOURCE OF INFORMATION			ISSUE CATEGORY			
MAP CODE	COUNTY	LOCATION	LOCATION DESCRIPTION	INTERVIEW	TECHNICAL	ECONOMIC DEVELOPMENT	CONGESTION/ CAPACITY	SAFETY	ECONOMIC DEVELOPMENT	ADDITIONAL INFORMATION
289	Effingham	S21	SR 21 at CSX Railroad			X	X			1998 at-grade railroad crossing
289	Effingham	S21	SR 21 from Chatham County to just south of SR 119			X	X			1998 at-grade railroad crossing
289	Effingham	S119	SR 119 at Southern Railway			X	X			1998 Shoulders
313	Effingham	U80	US 80 from Chatham County Line to Bryan County Line			X	X			
314	Effingham	S119	SR 119 from SR 17 to SR 21			X	X			
414	Effingham	S21	SR21 @ mpt 11.84 near the intersection of SR21 & SR119		X			X		
415	Effingham	S21	SR21 @ mpt 12.01 near the intersection of SR21 & SR119		X			X		
416	Effingham	S21	SR21 @ mpt 12.06 near the intersection of SR21 & SR119		X			X		
417	Effingham	S21	SR21 @ mpt 12.36 near the intersection of SR21 & SR119		X			X		
418	Effingham	S21	SR21 @ mpt 9.74 near the intersection of SR21 & SR119		X			X		
n/a	Effingham	S21	SR 21, .5 MI N OF SPRINGFIELD			X				Bridge
n/a	Effingham	S26	OGEECHEE RIVER OVERFLOW, 9 MI S OF GUYTON			X				whitetopping
40	Glynn	I95	Over .7 V/C 1998 - I-95 btwn. SR 99 and North County Line		X		X			
41	Glynn	S303	Over .7 V/C 1998 - SR 303 Brunswick		X		X			
42	Glynn	C582	Over .7 V/C 1998 - Torras Causeway		X		X			
43	Glynn	U17	Over .7 V/C 1998 - US 17 Near Brunswick		X		X			
44	Glynn	U25	Over .7 V/C 1998 - US 25 NW of Brunswick		X		X			
137	Glynn	Laltam	Over .7 V/C 2025 - Altahana Avenue Brunswick		X		X			
138	Glynn	I95	Over .7 V/C 2025 - I-95 through Glynn County		X			X		
139	Glynn	S303	Over .7 V/C 2025 - SR 303 Brunswick		X		X			
139	Glynn	S303	Over .7 V/C 2025 - SR 303 Brunswick		X		X			
140	Glynn	C582	Over .7 V/C 2025 - Torras Causeway		X		X			
141	Glynn	U17	Over .7 V/C 2025 - US 17 Near Brunswick		X		X			
142	Glynn	U25	Over .7 V/C 2025 - US 25 NW of Brunswick		X		X			
424	Glynn	I95	I95 @ mpt 5.33 between SR303 &US25		X			X		
425	Glynn	I95	I95 @ mpt 5.50 between SR303 &US25		X			X		
52	Liberty	I95	Over .7 V/C 1998 - I-95 North ofUS 84		X		X			
53	Liberty	U17	Over .7 V/C 1998 - US 17 btwn. South County Line and I-95		X		X			
54	Liberty	U84	Over .7 V/C 1998 - US 84 btwn. Hinesville and McIntosh		X		X			
158	Liberty	I95	Over .7 V/C 2025 - I-95 North of US 17		X		X			
159	Liberty	I95	Over .7 V/C 2025 - I-95 North ofUS 84		X		X			
160	Liberty	S119	Over .7 V/C 2025 - SR 119 North of Hinesville		X		X			
161	Liberty	S119	Over .7 V/C 2025 - SR 199 West of Hinesville		X			X		
162	Liberty	U17	Over .7 V/C 2025 - US 17 btwn. South County Line and I-95		X		X			
163	Liberty	U84	Over .7 V/C 2025 - US 84 btwn. Hinesville and McIntosh		X			X		
197	Liberty	S196	SR 196 McIntosh to US 17 - Poor Road Conditions	X			X			
234	Liberty	S196	SR 196 and US 84 McIntosh - Bad Intersection	X			X			
297	Liberty	U84	US 84 from I-95 to SR 144			X	X			1998 Shoulders
n/a	Liberty	S119	RUSSELL SWAMP, 3.5 MI WEST OF RICEBORO			X				
n/a	Liberty	S38	I-95 (SR 405), 2 MI SE OF MIDWAY			X				whitetopping
55	McIntosh	I95	Over .7 V/C 1998 - I-95 through McIntosh County		X		X			
164	McIntosh	I95	Over .7 V/C 2025 - I-95 through McIntosh County		X			X		

Infrastructure Standards

Two databases were queried in ArcView in reviewing the existing system for deficiencies, based on best practices identified in Chapter 3: The Highway Performance Monitoring System (HPMS) and the Road Characteristics Database (RC file).

The HPMS was developed in 1978 as a national highway transportation system database. The database includes detailed data for a sample of the arterial and collector functional systems and certain summary information for urbanized areas, small urban areas, and rural areas. The HPMS replaced numerous uncoordinated annual State data reports as well as biennial special studies conducted by each State. A major purpose of the HPMS is to provide data that reflects the extent, condition, performance, use, and operating characteristics of the Nation's highways.[1]

The RC file is an inventory of roadway characteristics for state and federally designated roads in Georgia. The roadway network is segmented by mile markers and includes, but is not limited to, geographic location, geometric characteristics, operation characteristic, maintenance responsibilities, and historical traffic count information.

Deficiencies were analyzed for three roadway types: freeways, four-lane divided GRIP Roads, and two-lane roadways not on the GRIP System. Each deficiency was identified in ArcView using the following pavement best practices:

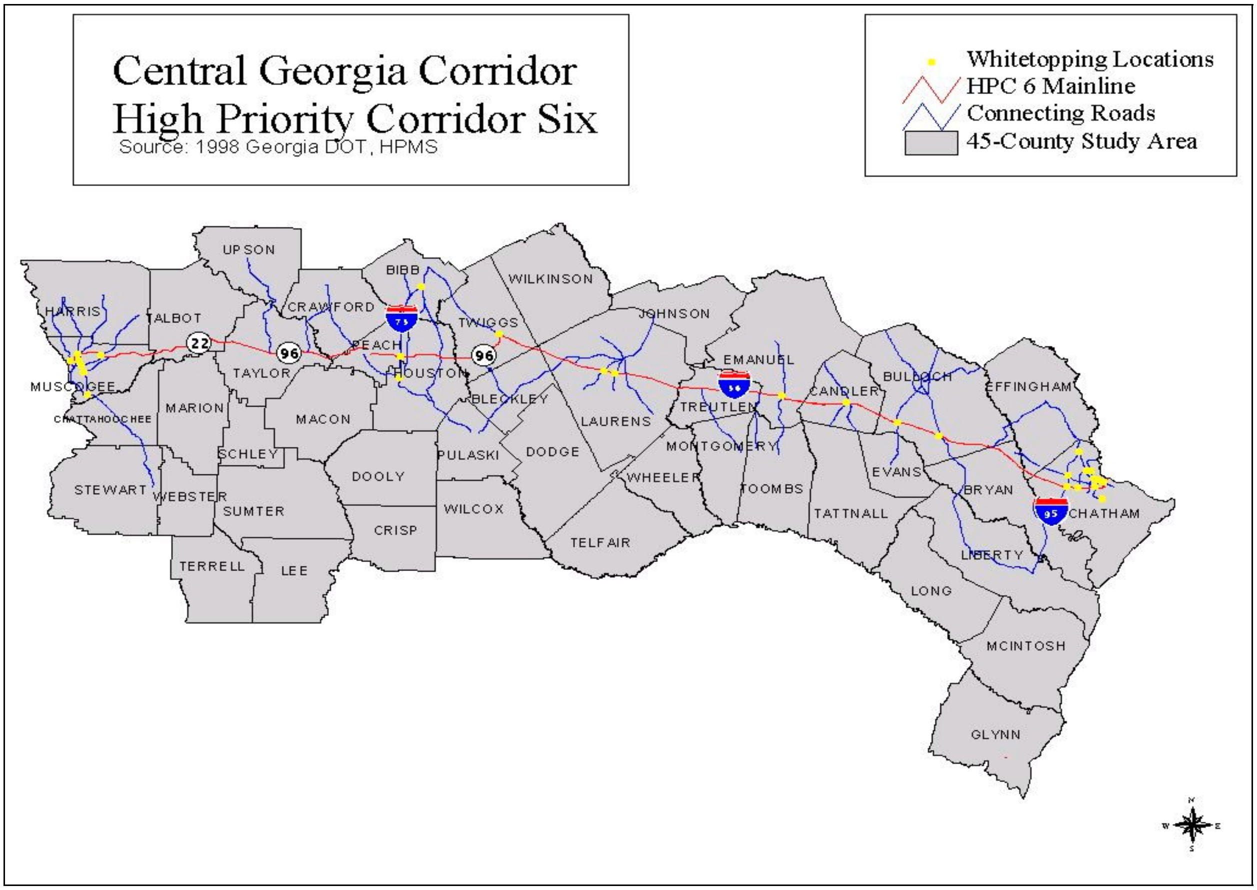
- Wide outside shoulders for freeways – 10 ft. minimum, 12 ft. desirable
- Full depth shoulders
- Portland cement concrete (PCC) or whitetopping for mainline
- Concrete pavement or whitetopping on interchange ramps and intersections in areas of high truck traffic

Pavement Deficiencies

Pavement deficiencies for this project were analyzed with regard to pavement thickness, pavement type, shoulder width, number of lanes, and traffic volume data. Freeway sections for HPC 6 mainline and connecting roads were identified for deficiencies based upon the best practices established for this study. Appendix I provides inside and outside shoulder width deficiencies that vary for two or three through lane sections.

[1] http://www.fhwa.dot.gov/ohim/hpmspage.htm

Figure 5-7
Six-Lane Freeways with Deficient Shoulders



Inside shoulders on six-lane freeways would ideally be wider than the shoulders on four-lane freeways. Figure 5-7 indicates six-lane freeways in the study area with inside shoulders out of the range of the study's best practices and therefore deficient:

- I-185 in Columbus
- I-75 in Macon
- I-95 in Savannah
- I-16 in Savannah
- U.S. 80 in Columbus

Upgrading the shoulder standards will not be possible on every section of freeway identified. Upgrading the shoulders on the six-lane section of I-185 in Columbus will be difficult due the right of way constraints along the corridor. However, as improvements are identified along the freeway system, upgrading the inside shoulder to ten feet is recommended to provide and adequate and safe space for vehicles to pull off the freeway.

Full Depth Pavement for Shoulders

The majority of the connecting roads on HPC 6 do not provide full depth shoulders. Routes carrying high traffic volumes would benefit from having full depth shoulder pavement, but the majority of the roadways on HPC 6 do not.

Portland Cement Concrete (PCC) Pavement

Of the 1,250-centerline miles of interstate in Georgia, there are approximately 500 miles of PCC pavement. Large portions of the interstates on HPC 6 provide PCC pavement. There are a few minor sections that are composed of asphalt pavement. Ten miles of PCC pavement is provided on portions of I-185 near Columbus in Muscogee County. All of I-475 near Macon in Bibb County is constructed with PCC pavement. I-75 and I-16 on the HPC 6 mainline and connecting roads are constructed with PCC pavement.

Portland Cement Concrete (PCC) Pavement on the Mainline

Portland cement concrete pavement can withstand higher volumes of traffic and this type of pavement surface would be beneficial on the HPC 6 mainline roadways (SR 96 and high volume connecting roads). The average surface life for concrete is 25 to 40 years, approximately 1½ to 2 times greater than the service life of asphalt pavements.[2] Currently, PCC is the pavement type used on the interstates (I-185, I-75, I-16, I-516, and I-95) in the study area.

Constructing the HPC 6 mainline on SR 96 between Fort Valley and I-16 with PCC pavement would provide a surface that would withstand the projected truck volumes for approximately 25 to 40 years. Providing PCC pavement on the entire mainline section of HPC 6 will allow trucks to operate better, faster, and cheaper with less down time for roadway repairs, providing a competitive advantage to the State of Georgia.

Whitetopping Key Intersections and Interchanges

Conventional whitetopping provides four inches or more of concrete overlay placed directly on top of existing asphalt pavement. At some intersections, ultra-thin whitetopping (UTM) could be used as well. UTM is a concrete overly, usually less than four inches thick placed on an asphalt surface that is prepared to enhance the bond between concrete and asphalt.[3]

Figure 4-8 shows interchange and intersection locations that would benefit from whitetopping. Twenty-eight locations were identified for whitetopping based on the amount of daily truck traffic. The majority of these locations are in Columbus and Savannah. A detailed list describing each whitetopping location is located in Appendices D, E, and, I.

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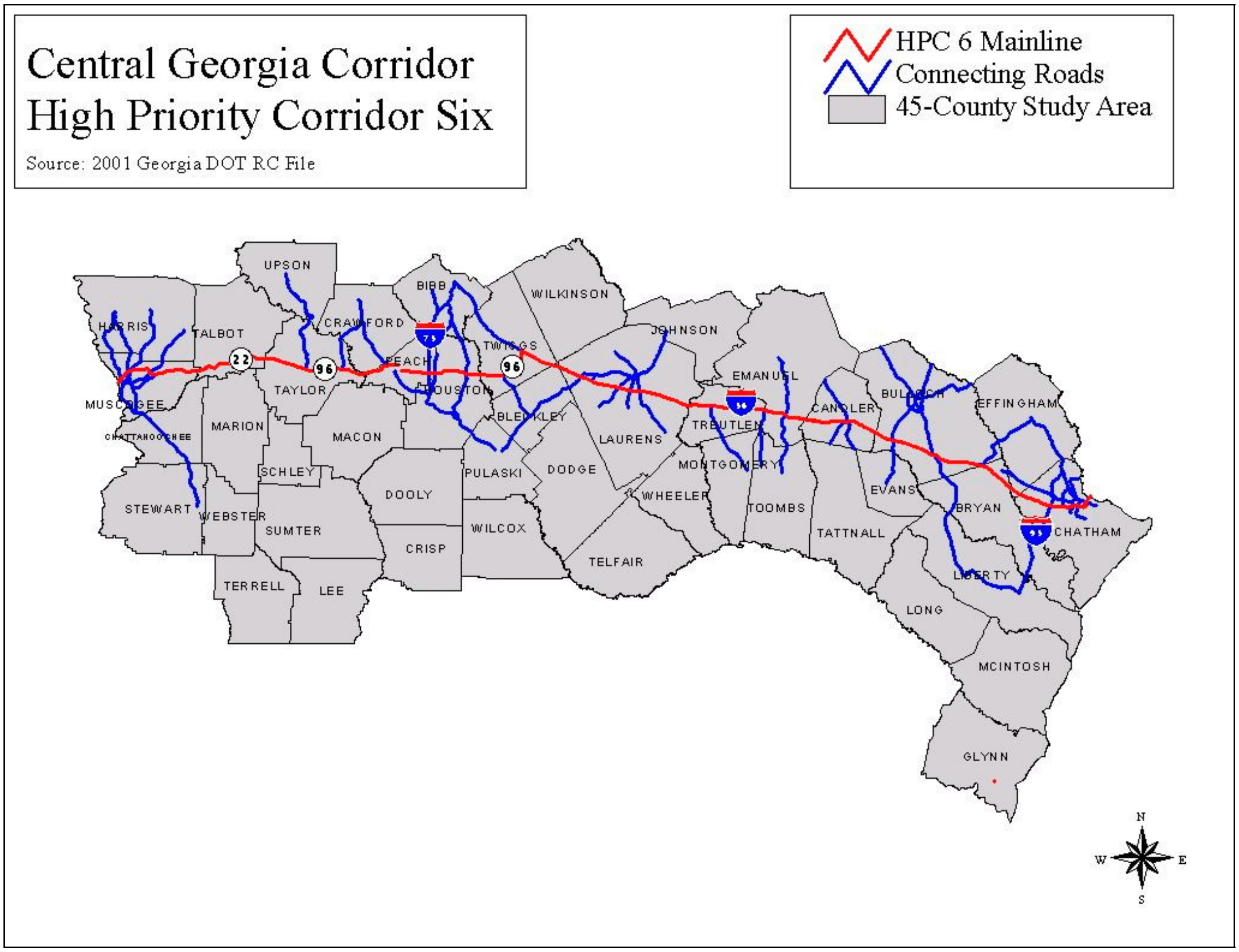
[2] *Pavement Costs and Quality*. Robert G. Packard, *Concrete International*, August 1994

[3] *Whitetopping – State of Practice.* Engineering Bulletin, American Concrete Pavement Association.

Figure 5-8
Whitetopping locations on HPC 6 Mainline and Connecting Roads



The benefits of whitetopping include superior service, long life, low maintenance, and improved safety. Whitetopping is traditionally used to repair the rutting, shoving, and tearing of asphalt pavement caused by trucks.

Bridge Best Practices

There are several identified best practices to be utilized in building, repairing, and maintaining bridges. Some best practices are:

- Replace bridges with a sufficiency rating of 50 or below. Bridges with a sufficiency rating of 60 or below are also likely candidates for replacement.
- All bridges designed for at least HS-20 loads.
- No steel or continuous steel bridges.
- Adequate horizontal and vertical clearance for bridges.
- Smooth bridge ends to decrease dynamic loads on pavement.

Bridge Deficiencies

Each bridge on the HPC 6 mainline and on connecting roads was evaluated by analyzing the GDOT Bridge Management Inventory System (BMIS) database. The BMIS database provides data on various bridge characteristics. These characteristics can then be evaluated against AASHTO standards and the best practices created for this study to determine deficient bridges.

Additional truck volumes projected along HPC 6 will affect the bridges on the HPC 6 mainline and the connecting road system. The critical data used to evaluate bridge deficiencies were calculated load factor (H or HS loads), sufficiency rating, bridge structure type, and vertical-clearance. If a bridge did not meet one of the bridge standards or best practices, it is identified as deficient. There are four critical areas that can trigger a bridge to be identified as deficient: a sufficiency rating of 60 or below, a load rating of less than HS-20, a bridge constructed with steel or continuous steel, and/or inadequate horizontal and vertical clearance. Using these principles, a total of 153 bridges, 34 bridges on the mainline and 119 on the connecting roads, were identified as deficient. Appendix F contains a complete list of all the deficient bridges on the mainline and connecting roads.

Railroad/Roadway Best Practices

Grade separation at all grade rail crossings along the HPC 6 mainline is important for the efficiency of freight movement by rail and by truck and for safety reasons. At grade rail crossings are a bottleneck for roadway vehicles and eliminating these crossings will provide for the efficient movement of truck borne freight. In addition, rail borne freight is slowed tremendously by at-grade intersections. This study identified two railroad crossing best practices:

- Mainline grade separations at all railroad grade crossings.
- On connecting roads, use of pre-cast concrete panels at all railroad grade crossings

Railroad Deficiencies

Railroad crossing deficiencies were identified by using the railroad crossing inventory data provided by the Federal Rail Administration (FRA) and GDOT. Two measures were developed and used to evaluate each railroad crossing on the mainline and connecting roads. The first measure examined the safety of each railroad crossing and noted any needed safety improvements. Grade separations of vehicles and trains would provide the greatest level of safety. However, because of cost and adjacent properties, this is not always a viable option. Other safety options include the provision of adequate warning devices at each at-grade rail crossing, such as gates, lights, and bells. The second measure included smoothness of the rail crossing. Using prefabricated concrete panels is a GDOT standard, which provides a durable and smooth surface requiring less maintenance.

The majority of the 50-programmed projects in the GDOT CWP consist of the installation of active warning devices such as gates, lights, and bells. A complete list of railroad crossing projects identified in the CWP is the Appendix C and railroad crossing deficiencies are located in Appendix G of this report.

Non-Programmed Deficient Railroad Crossings

A majority of the rail crossings along the HPC 6 mainline are grade separated. However, there are five at-grade rail crossings on the HPC 6 mainline between Columbus and Savannah. Four of the five at grade railroad crossings are located on SR 96 in Crawford, Houston, and Twiggs Counties and the remaining crossing is located on SR 49 Connector in Peach County. Grade separating all rail crossings located along the HPC 6 mainline would provide the most efficient freight corridor. Grade separations would improve the flow of goods and improve safety. Appendix G contains a list of at-grade railroad crossing identified on the mainline and connecting roads.

There are a total of 15 at-grade railroad crossings on the HPC 6 connecting roads. Providing grade separations on the connecting roads would be beneficial in improving the flow of goods but, from a cost standpoint, constructing them is not feasible. Improving safety on the connecting roads is feasible by providing, at minimum, gates, lights, and bells. Figure 5-9 shows at-grade railroad crossings on the HPC 6 mainline and connecting roads.

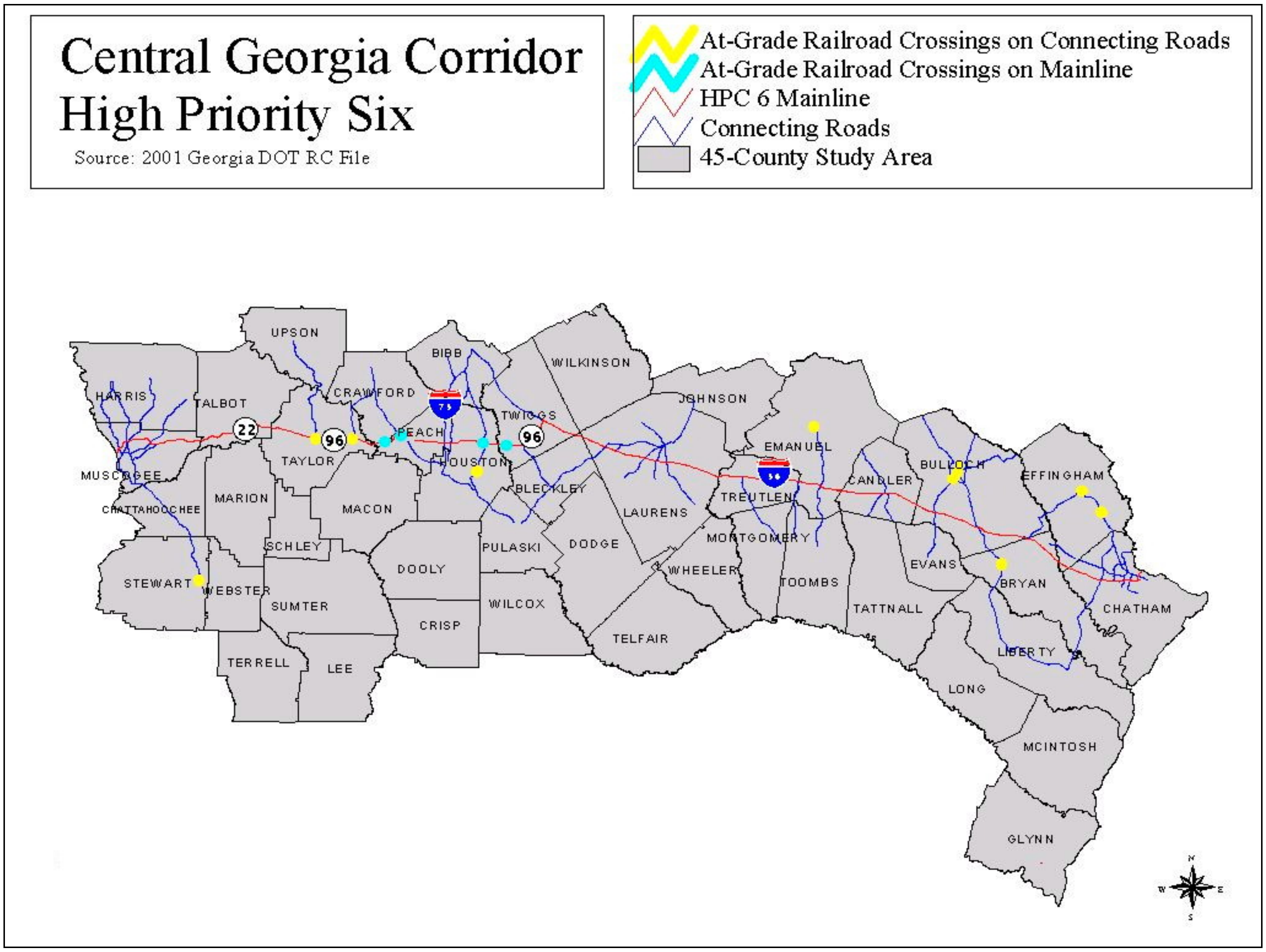
Pre-cast Concrete Panels

Road surface characteristics perform an important role in determining railroad-crossing improvements along this freight corridor. All at-grade crossings on the connecting roads should provide pre-cast concrete panels to provide a smoother ride. Due to the projected truck traffic on the connecting roads, the current asphalt or wood ties would require more maintenance attention than the pre-cast concrete panels.

Four Lane Divided GRIP Roads

There are seven GRIP routes located on the HPC 6 mainline and connecting roads. A table provided in Appendix I highlights potential bottleneck intersections and key intersections that would benefit from whitetopping. This table also identifies railroad crossings where grade separation would be beneficial. The table shows GRIP sections where full depth shoulders are recommended.

Figure 5-9
At-Grade Railroad Crossings on HPC 6 Mainline and Connecting Roads



Intelligent Transportation Systems (ITS) Issues

Intelligent Transportation Systems can best be described as a 'concept' - a concept that includes the idea of utilizing technology and applying it in the field of transportation. This can include communications, sensors, information processing, controls, and other technology-based strategies to facilitate the movement of people, goods, and information to save time, lives and money. ITS can play a positive role in the enhancement of freight movement within and through central Georgia. These enhancements can ultimately lead to increased economic activity for the region. ITS technology deployments across the United States have demonstrated their ability to improve passenger and freight mobility, contribute greatly to the reduction of congestion and improve air quality, and allow for the rapid communication of life-saving emergency related information. Georgia DOT is committed to utilizing ITS strategies and has developed a 20 year ITS Strategic Plan as well as an ITS for Commercial Vehicle Operations (CVO) Business Plan. Both of these plans have outlined Georgia DOT's intention to utilize advanced technology to improve Georgia's transportation system and increase the safety of its citizens.

Corridor ITS Deficiencies/Opportunities

There are several areas along the Georgia freight corridor that can benefit from the deployment of ITS strategies. During the course of this study, three primary opportunities continue to surface with respect to ITS deficiencies. Potential ITS solutions can improve safety, increase information flows, and enhance freight flows in central Georgia.

Safety

ITS safety enhancement opportunities along the corridor surfaced in numerous locations. Rural highways in central Georgia support freight movements from many industries. In addition to accommodating central Georgia based industries; these same highways are used by through freight traffic. The logging industry in the central Georgia region relies heavily on trucking and quite often those trucks are required to enter the highway from temporary access points with limited sight visibility and/or without any acceleration lanes. The only 'protection' these loaded trucks have before entering a two lane highway is a small portable flag at roadside. Quite often these flags are difficult to read or are dirty. These flags are placed at the roadside and remain day and night. This can create a safety hazard for all involved. Local traffic becomes accustomed to viewing these flags at all hours including those hours when there is no logging truck activity. This can lead to decreased effectiveness of any caution/warning properties of the flag.

Georgia, like many other states, must deal with sections of highway that are prone to fog conditions. Fog conditions combined with high speed truck traffic and numerous local roads and residential driveways entering directly onto the highway can lead to what are often times fatal crashes. There are fog warning signs throughout the corridor but they are always present in good weather and bad and can tend to become 'invisible' when they are needed most. ITS technologies exist today that can help reduce the safety risks associated with low visibility fog conditions.

Cold weather combined with precipitation can lead to icy roadways and can create horrific vehicular crashes when they involve heavy vehicles traveling at highway speeds. Many of central Georgia's highway bridges have "icy bridge" warning signs posted. These static warning signs are posted permanently. This means the same warning sign is present on days when the temperature is approaching 100 degrees and on days when the temperature is less than 30 degrees Fahrenheit. Much like the fog warning signs, the "icy bridge" warning signs can tend to become 'invisible' when they are needed most. This is especially critical for bridges that are on a curve. ITS technologies exist today that can help reduce the safety risks associated with icy roadway conditions.

Stakeholder meetings conducted as part of this study identified at least one truck rollover zone. It is not uncommon for trucks to enter highway interchange ramps and underestimate the appropriate speed conditions for the type of load the truck is carrying. Due to the excessive superelevation in some ramps, trucks traveling too slowly can tip over due to a high center of gravity. In other cases trucks rollover because the degree of curvature is greater than average and truck drivers unfamiliar with the interchange enter at too high a rate of speed. ITS technologies exist today that can significantly reduce the number of truck rollover crashes.

An obvious safety opportunity was observed in the City of Vidalia on US 280. Truck traffic must pass underneath a railroad bridge near the city square. The clearance for this bridge is 13'-7". Many trucks have a standard height of 13'-6". If trucks are equipped with top mounted communications systems, they can easily exceed this height. Accidents resulting from exceeding maximum clearance heights can produce safety hazards in three different ways. First, the truck can be damaged (this can be compounded if the truck is transporting hazardous cargo), second, any damage caused by a truck-bridge collision may cause traffic jams, and third, the truck can damage the railroad bridge reducing the structural integrity of the bridge.

Information Communication

Freight movement within and through the central Georgia corridor can be improved by supplying the right information, to the right people, at the right time. During the course of this study, several information communication deficiencies/opportunities became apparent.

The Port of Savannah is faced with some very serious but common challenges. Like most intermodal ports, the Port of Savannah has local rail access. While dockside rail can help reduce truck congestion entering and exiting the port area, it also creates tremendous congestion and delays. The Port of Savannah is experiencing unprecedented growth and has just recently surpassed the 1,000,000 TEU annual container movement benchmark. Approximately 3,100 trucks travel in and out of the Port of Savannah each day. The rail/truck ratio is approximately 15 percent rail and 85 percent truck. Approximately 70 percent of the truck traffic accessing the port is local and the remaining 30 percent are long distance carriers. According to the Georgia Ports Authority, the Port of Savannah will experience a 10 to 12 percent increase annually. This growth, while good for the local and state economy, greatly taxes the local transportation system. With the total number of truck movements increasing, delays in the port area are not limited to trucks - local passenger traffic is experiencing delays as well. As is the case with most ports across the United States, real estate near the port is at a premium and increasing the size of the terminal or increasing the roadway capacity is no longer a viable option in many cases. Given these constraints, the Port of Savannah has to develop a 'freight smart' infrastructure to accommodate this growth.

With respect to port freight movement delays, all of the terminals in Savannah are impacted by rail movements. These delays are experienced within the terminals (rail traffic traversing within the terminals) and also at key locations surrounding the terminals causing trucks to be 'trapped' at rail crossings on feeder roads between the terminals and the major highways. In some cases, these railroad crossings occur adjacent to signalized intersections creating hazardous conditions where a truck may be stopped on the railroad tracks at the same time the traffic signal has turned red.

The Fire Department in Garden City, GA is adjacent to Port of Savannah property. The location of this emergency facility is between two sets of railroad tracks serving the port. Any ITS solutions targeted toward freight movements at the Port of Savannah will also benefit the Garden City Fire Department. ITS technologies exist today that can significantly reduce the delays associated with railroad crossings in the vicinity of port operations.

In addition to the rail crossing challenges at the Port of Savannah, the Port Authority of Georgia has identified deficiencies in the area of signage. Many of the existing directional signs are inadequate and unclear. Non-local truck drivers delivering or picking up freight at the port have difficulty locating the port facilities. There are typically multiple terminals within a port and rarely does roadway signage provide directional information to specific terminals. It isn't unusual for a port to have terminals spread across a large municipal area. ITS technologies exist today that can significantly improve the dissemination of directional information to drivers serving the port.

During discussions with central Georgia corridor stakeholders, several high accident zones were identified. Not all of these accident 'zones' apply exclusively to truck traffic but the presence of trucks can increase the severity of crashes. The reasons for these zones vary. In one case the presence of a shopping center, a fast food restaurant, and a high school co-located around an intersection serve as a recipe for danger and congestion when combined with high volumes of truck traffic moving along that section of highway. Still other cases were noted where roadway geometry contributes to the establishment of accident zones. Another zone exists where heavy truck traffic (in this case a rural truck stop) enters and exits the highway mixing with 55 MPH automobile traffic. ITS technologies exist today that can communicate the existence of these zones allowing the truck drivers to be on 'high alert' when they are in the area.

Another information communication opportunity identified during the course of this study is advance knowledge of incidents or construction work along the freight corridor. Freight carriers entering the state in Columbus headed east or freight trips generating in Savannah or Brunswick headed west could be notified of potential delays along the corridor and given the opportunity to re-route when appropriate. The trucking industry values this type of information and acknowledges that this type of information contributes to the efficiency of Just-In-Time (JIT) delivery operations. Not all freight movements are as time critical as JIT operations but those markets that do depend on the timely delivery of goods rely on any advance information that may affect freight travel time. There are various ITS strategies that can deliver time critical information to the central Georgia corridor freight community.

Freight Flow Enhancements

Several opportunities exist in the central Georgia region to facilitate freight flows through the deployment of ITS technologies. Because much of the region is rural in nature, the major freight routes/highways travel through the hearts of cities and townships. In addition, many truck trip generation sites are co-located on rural roads with school bus stops and must share the same roadways/highways with local automobile traffic (work trips, shopping, etc.). Properties along the freight corridor experiencing large amounts of truck egress and ingress activity warrant special warning mechanisms to alert automobiles of the potentially drastic speed differentials.

Another freight flow enhancement directly benefiting trucking companies, as well as the involved state agencies, is expedited permit processing. It is not uncommon for freight trips generating or ending at Georgia ports and manufacturing plants to obtain special permits from state agencies. Trucks that are oversize or overweight require these permits to operate on Georgia roadways. This permit application and issuance process may take several days. Often times these permits require special time constraints (freight transport must occur during daylight hours) and may require escorts and detailed bridge analysis along the proposed route.

Each of these freight traffic challenges are candidates for various ITS strategies.

Conclusions

Hundreds of transportation deficiencies were found during the course of this study. Further categorization of these deficiencies and of potential solutions will be accomplished over the months of work during Phase 3 as the study team directs its attention to focus on specific project solutions.

Many of the deficiencies discovered during the course of Phase 2 fall into a category of recommended best practices for future construction or rehabilitation of existing intersections, roadways or bridges. These might be shoulder widening, including the inside shoulders of interstates; bridge replacements; intersection resurfacing; railroad crossing grade separations; and whitetopping.

Other deficiencies might be categorized as projects already in the pipeline for early completion, such as GRIP projects. Also, projects in the State Transportation Improvement Program and Construction Work Program could be included in this grouping.

There are some deficiencies however, that are not addressed in the foreseeable future by any current program. As the Central Georgia Corridor Study continues into Phase 3 the focus will narrow to these projects that are in need of champions and will make a measurable difference in the ability of the region to compete in terms of freight flow and trade.

6 Public Involvement

Background and Purpose

The public involvement component of this study called for organizing stakeholder groups, meeting with local and regional governmental agencies and conducting general public information meetings at specific points throughout the study. Each group met with has been and will continue to be used to assist GDOT in identifying deficiencies and eventually in reviewing the final set of recommended strategies.

Key stakeholders were identified during Tasks 1.2 and 1.3 of the study. Project stakeholders were defined by identifying groups, citizens and establishments that will be directly impacted by the preferred strategies. This group includes shippers, receivers, and freight carriers across all freight modes. The stakeholder group also includes local governmental officials, chambers of commerce, and development authorities.

The consultant team has held two rounds of stakeholder meetings in the corridor, near the end of Phases 1 and 2. The intent of the meetings has been to learn from the citizens of the corridor of deficiencies in the movement of freight. The third meeting, near the end of Phase 3, will be to demonstrate to the stakeholders how their information was used and the program that resulted from their information and technical studies. The study team has worked with GDOT staff throughout the process to identify participants, locations and format of these meetings.

Newsletters summarizing the project status were distributed at the end of Phase 1 and another will be distributed to reflect the results of Phase 2. In addition to mailing out newsletters, they are also contained on the GDOT Office of Planning website.

Overview of the Approach / Methodology

In May 2002 six stakeholder meetings were held for the project. Phase 2 of the study examined transportation system deficiencies within the corridor and the stakeholders were utilized to review and comment on these deficiencies. The stakeholder group consists of 1890 members with professional backgrounds in government, industry, transportation, economic development, planning and engineering, public safety, trade, special interest, and tourism. The stakeholder group functions as an advisory group to the study team.

Stakeholder Meetings

The six stakeholder meetings were held in Americus, Columbus, Dublin, Macon, Savannah, and Vidalia. Over 200 stakeholders were invited to each meeting. Stakeholders received newsletter #2 to inform them of the progress of the project and they received a personal invitation to attend a stakeholder meeting in their area. The meeting locations were selected based on geographic dispersion of the stakeholders and proximity to regional growth engines. The Corridor encompasses 45 counties and with almost 1900 stakeholders the study team attempted to find locations relatively accessible to each of them. Figure 6-1 shows the six regions that were each covered by one of the meetings.

Meeting attendance was low, although good for a study focused on freight movement in this region. Minimum attendance at each meeting: 13 stakeholders in Americus, 18 in Columbus, 16 in Dublin, 22 in Macon, 15 in Savannah, and 22 in Vidalia.

The study team presented findings of Phase 2 and stakeholders were then divided into small groups with between four and eight persons each. At least one study team member was with each group. The stakeholders were asked to examine and discuss the deficiency maps and tables presented in Chapter 5 of this document. The GDOT Construction Work Program Maps were also available for stakeholders to use in reviewing programmed projects in the study area. The stakeholders reviewed the maps for accuracy in content. Each comment was recorded and is in the process of being addressed in Phase 3. The comments from each meeting can be found in Appendix I.

Stakeholders received the 2002-2003 State Map of Georgia, a handout of the PowerPoint presentation, and the Central Georgia Corridor Study overview document.

The purpose of the meeting was to review potential system deficiencies and identify gaps as well as understand how existing transportation work programs could address potential system deficiencies. Through the break out groups and the discussions afterward, the goals of the meetings were achieved.

Figure 6-1: Stakeholder Regions

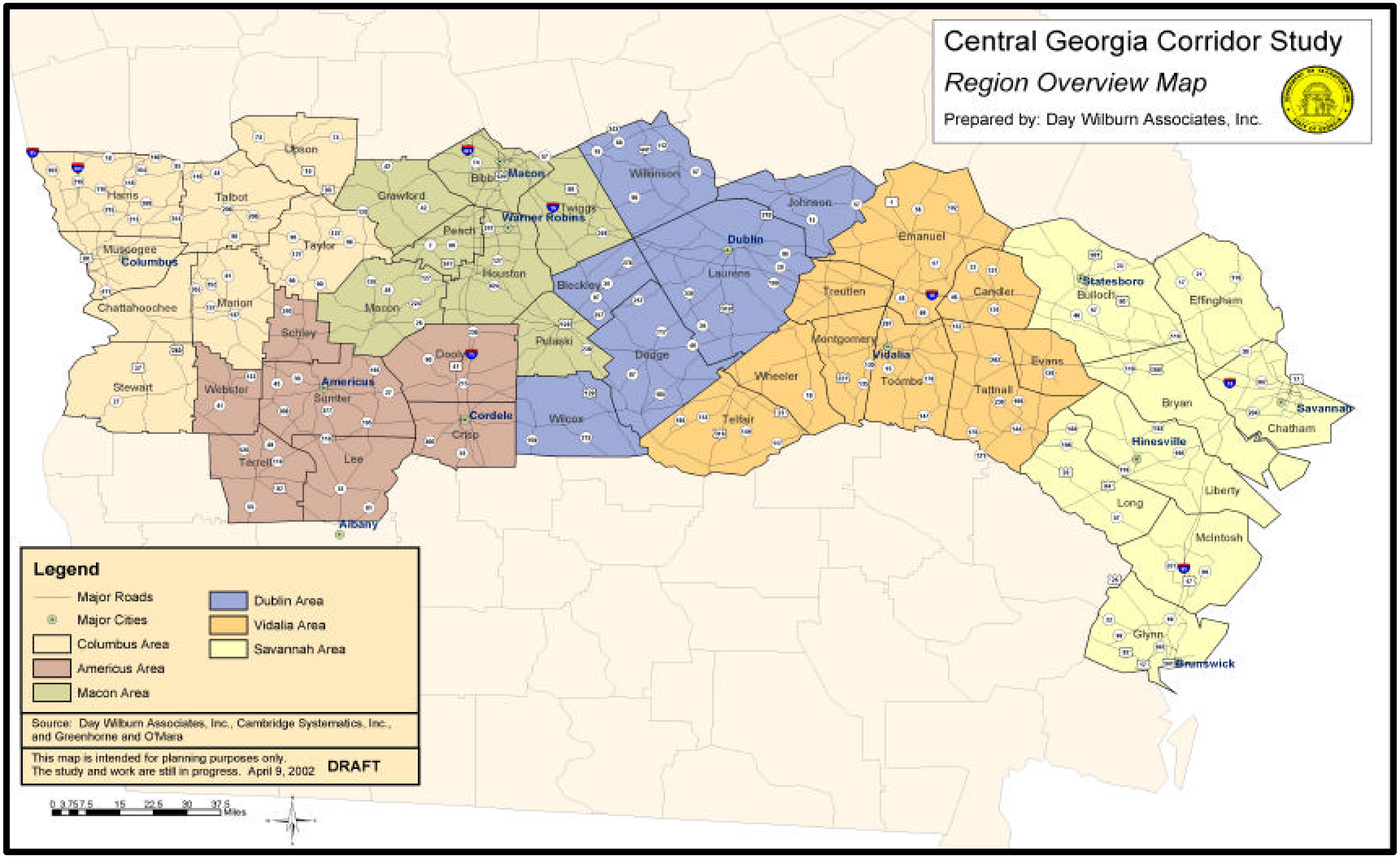


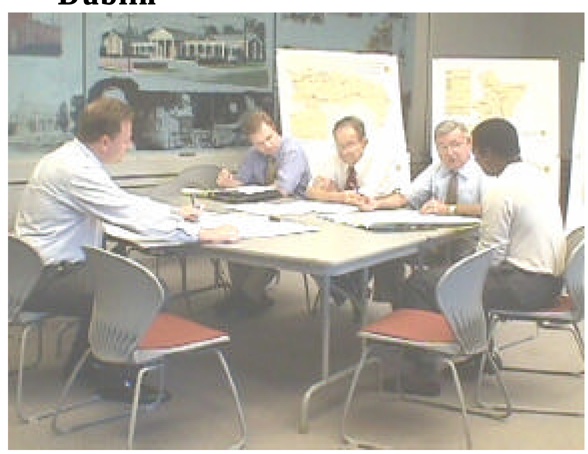
Figure 6:2 a-f: Photographs of Stakeholder Meetings

Columbus

Macon

Macon

Dublin



Dublin

Vidalia

Summary of Key Findings

Stakeholders were helpful in identifying additional deficiencies but also challenged some "perceived" deficiencies. As an example, US 280 south of Columbus is categorized as "perceived poor road conditions." Stakeholders indicated that this was not in fact correct, and that the road was in good condition, although certain intersections were in need of improvement for a variety of reasons.

Stakeholders also indicated additional areas of "perceived congestion" that did not meet the study team's criteria for congestion as indicated in Chapter 2. There are areas that grow so fast that in comparison to a few years ago they do seem congested. It would appear that this may be the case in more than a few areas. However, the study team will evaluate each instance of perceived congestion.

Safety was a prime concern at all of the six meetings. Unsafe intersections and roadway conditions were pointed out by stakeholders. Intersections at the same grade as railroad tracks were specifically mentioned in many urban and urbanizing areas. Interstate interchanges with safety and/or operational needs were indicated as were improvements for military transport within the corridor.

ITS solutions were suggested for several types of traffic problems. Congestion in small downtown areas was particularly noted by stakeholders. In some cases stakeholders suggested bypassing the towns and in some instances they asked that ITS solutions be considered. Signage deficiencies were noted as were suggested locations for turn lanes, and acceleration and deceleration lanes.

Finally, economic development roadways were mentioned and their completion is universally and eagerly anticipated. Some stakeholders realized that with economic development would come additional traffic problems but believe the GRIP system will handle such problems.

Stakeholder comments can be found in Appendix I. Suggestions are being evaluated and responses will be provided to meeting attendees. In addition, the study team will take these comments into consideration as Phase 3 proceeds.

Conclusions

As with most planning studies, it is difficult to excite citizens to meet on transportation studies, much less a freight transportation study. Attendance was low at stakeholder meetings but a representative group was present at each meeting and those present appeared to be knowledgeable of their entire region. As indicated previously, comments will be taken into consideration as Phase 3 of the Central Georgia Corridor Study proceeds.

7 Summary and Conclusions

Introduction

The evaluation of the intermodal freight transportation system in the 45-county Central Georgia Corridor has been reported in this document. In simplified terms regarding the process thus far, the study team defined base year (1998) and future year (2025) traffic conditions and identified associated needs, or deficiencies, along the HPC 6 and US 280 corridors. The research accomplished in Phase 1 was used in Phase 2 of the project, just as the results of Phase 2 will be used in conducting Phase 3 – Recommendations.

Commodity flow and economic profile data developed in Phase 1, Tasks 1.6 and 1.7 were used to construct baseline traffic estimates. Demographic data collected and mapped in Phase 1, Task 1.8 was used to establish "background" (or non-freight) traffic in areas where travel demand forecasts do not exist. Travel demand model data was used to supplement any existing traffic forecasts along the corridor.

Largely because of the magnitude and geographic extent of the study, each technical assessment has been performed in a very systematic way using data and information from large statewide and national data sources. That information has been augmented with a substantial number of personal interviews, both in Phase 1 and in Phase 2. The deficiency assessment has undergone critical reviews by the GDOT Steering Committee and project stakeholders to ensure that all system deficiencies have been captured and clearly characterized.

Phase 2 Summary

Current and forecast freight flows were developed for the study area. Chapter 2 presented current highway and rail volumes and future highway and rail forecasts. These traffic projections will guide the next phase of this study – the development of recommendations for capacity and operational improvements.

The baseline for the daily freight corridor traffic was established by linking 1998 Transearch commodity flow information with average truck payload factors. Once annual truck equivalents were derived, they were converted into daily truck equivalents. In turn, the 2025 projection required the 1998 daily truck equivalent data to be extrapolated according to growth factors developed through REMI modeling.

The non-freight traffic AADT for each section of highway was developed from existing GDOT information, specifically the 1998 HPMS data file. The forecast of the 2025 non-freight AADT employed a 1.9 percent growth rate, in accordance with the estimation methodology that was used for the statewide transportation plan.

Current and future freight and non-freight AADT were used to calculate volume to capacity (V/C) ratios and were subsequently mapped on the Central Georgia Corridor highway network. Concentrations of high V/C primarily in and around the three major metropolitan areas in the Corridor and future level of service deterioration on all segments of I-75 and I-95 resulted, along with some segments of routes near smaller activity centers.

Rail forecasts were developed using REMI data and DRI/WEFA/Transearch projections. Key adjustments to these forecasts related to port activity and shortline railroads have been presented.

In addition, a methodology for addressing potential changes in mode choice among truck, rail, and waterborne freight was developed. Changes in freight mode choice will be further tested as "what if" scenarios with the aid of the Roadway Network Planning Tool developed for this project. The Roadway Network Planning Tool was developed to run in ArcView GIS to re-route truck trips in response to changes in the highway system. These changes may include new roads, bypasses, faster speeds, ITS technologies, lane widening, railroad track or bridge improvements, and other design and capacity changes. In Phase 3, the tool will allow for the testing of alternatives in the Corridor to determine how these changes and alternatives affect freight movement.

Many of the system deficiencies included in this document address the overall efficiency of the transportation system as a result of traffic congestion and/or safety issues. In some cases the deficiencies relate directly to the overall economic stability and growth of central Georgia. However, the study team found that most of the transportation issues are localized in nature and are not systemic to the entire study area. Consistent with Phase 1 findings, many of the congestion and safety deficiencies focus on the interstate highways, major towns, cities, and the areas around the Port of Savannah.

Implications of additional freight in the Central Georgia Corridor will have bearing on the GDOT maintenance program, as delineated in Chapter 3. Current roadway maintenance technologies may not be sufficient, and, indeed, already show the use of inappropriate pavement types, i.e. asphaltic concrete, in areas of extremely high freight movement. Whitetopping of intersections and even entire roadbeds would reduce the need for frequent repairs to rutted roadways.

The GDOT currently performs roadway maintenance activities to improve capacity and mobility. In addition to current maintenance activities, the GDOT could evaluate truck only facilities, upgrade rural highways, and construct grade separations at key intersections and railroad crossings. The use of new pavement technologies such as PCC, whitetopping, and full depth concrete can positively impact future maintenance needs by prolonging the life of the roadway network.

There are 541 projects identified in the GDOT's CWP within the Central Georgia Corridor study area. Approximately 50 percent of the programmed projects in the study area are either road widening or bridge projects. Resurfacing and maintenance projects comprise ten percent and railroad crossing upgrades provide five percent for programmed projects. There are seven GRIP routes in the study area and over the next six to ten years the GRIP system will be completed. Implementation of the GRIP system will upgrade numerous mainline and connecting roads in the Central Georgia Corridor. During the next six years, the GDOT will improve 50 Railroad grade crossings in the Central Georgia Corridor study area. Intelligent Transportation Systems will apply state of the art technology to existing transportation systems. Implementation of the ATMS projects in Columbus, Macon, and Savannah and weather monitoring systems in Glynn County will allow trucks to operate more efficiently providing a competitive advantage to the State of Georgia. Projects identified in the CWP address crucial transportation needs and many of these projects will eliminate deficiencies throughout the Central Georgia Corridor.

The cost and speed of freight delivery are affected by many things, among them proximity to four-lane roadways or interstates, intermodal connection efficiency, congestion, and bottlenecks on road and railways. In addition, efficiency of the haulers, shippers and receivers, fuel prices, and the cost of labor can affect the cost of freight delivery.

Manufacturers who create goods that are not location dependent choose rural counties if the transportation infrastructure is sufficient and a relatively inexpensive, skilled labor force is available in the area. Manufacturers and businesses that are location dependent, such as agriculture, forest products, and mining have the same requirements, without which competitors may prevail with lower market prices.

The transportation system that serves these location- and non location-dependent businesses has a direct relationship to the cost and speed of freight delivery. Congestion, inadequate road and rail bridges, bottlenecks, narrow, winding roads and bridges, and poorly designed and operated intermodal freight connections can slow the delivery of freight to markets, decrease the competitiveness of Georgia products and thus slow our trade with other states and countries.

The overall reliability of the transportation system is important to trade and is of special importance to our country in times of national emergency. Georgia is home to ten military bases, four of which are located in the project corridor, that are connected to each other and the rest of the country via the Strategic Highway Network (STRAHNET). In addition, the connection between the bases and the Georgia ports, especially the Port of Savannah are critical in times of overseas deployment. As a part of this study the STRAHNET connections have also been reviewed and analyzed with respect to overall reliability.

The transportation system of a region is related to its overall growth and economic stability. In 1998 the Georgia Department of Transportation (GDOT) contracted with Dr. Douglas Bachtel of the University of Georgia to provide an analysis of the Governor's Road Improvement Program (GRIP) as it relates to the economy of selected Georgia Counties. The report can be found on the GDOT Office of Planning web site. As a part of Dr. Bachtel's work, he provided a substantial discussion of studies that have demonstrated the link between the quality of the transportation system and economic stability and growth. The report contains numerous citations of the correlation between growth, economic stability, and the transportation system.

However, transportation alone is not responsible for economic development. Many other factors play an important role, such as increased educational and vocational training and job readiness skills. Equally important is the cooperation between state and local governmental officials and the private sector. However without an effective and efficient transportation system, economic development will not occur. Businesses cannot afford to locate where they cannot either ship or receive their goods efficiently.

The Governor's Road Improvement Program (GRIP), initiated in 1989 by state legislation, is a network of developmental four-lane highways and roads. The State's goal for the program is to place 98 percent of the state within 20 miles of a four-lane road.

In 2001, with two-thirds of the approximately 150 road projects in the GRIP complete or under construction, the Governor initiated his Transportation Choices Initiative (GTCI). A portion of this plan would greatly accelerate completion of the GRIP program, which otherwise would have taken another 20 years to complete. In completing this system sooner, the economic impact will be felt sooner. Dr. Bachtel's work was quoted as crediting GRIP with "the creation of 15,000 jobs and an economic impact of $300 million".

In addition, stakeholders from across Central Georgia and the Georgia Department of Industry, Trade and Tourism, have related anecdotes concerning the questions asked by industries and businesses searching for new locations. One of the first two questions asked is if there is a four-lane road in the community that connects to an interstate highway. Economic growth cannot be expected in an area without a well-connected transportation system.

A transportation system that is not safe and maintained would be contrary to the GDOT mission: the commitment to a "safe, efficient and sustainable transportation system". An inadequate transportation system includes poor pavement, narrow road and bridge width, poor sight distance, frequent bottlenecks and accidents, frequent at-grade railroad crossings, poor connectivity, and weight restricted bridges or trestles.

Safety deficiencies cause lower speeds, causing increased freight delivery time and increased costs. Safety deficiencies also result in accidents and concomitant increases in insurance costs, which lead to increases in the cost of shipping and therefore goods. Large-scale cost increases decrease the competitiveness of the region.

Maintenance issues affecting freight movement require constant attention to pavement, shoulders, bridges, rails, and trestles – to any part of the transportation infrastructure. Large trucks carry many tons in weight. By identifying the major freight carrying routes in Phase 1, attention was given in Phase 2 to maintenance problems on these routes.

In terms of roadway capacity analysis, the study team used Highway Performance Monitoring System (HPMS) data for study area roadways. Average capacities per lane were calculated by roadway functional class. The calculated capacities were applied to each highway segment to estimate a level-of-service by dividing each road segment's traffic count by the estimated capacity for that segment (volume/capacity or v/c ratio). This methodology resulted in the definition of congested areas, those areas with a v/c ratio > 0.7, for the existing and future transportation system as explained Chapter 2 of this document.

Accident data was also reviewed and assisted in defining bottleneck and safety deficiencies. The Georgia Department of Transportation database was utilized as a source for high accident locations in the Central Georgia Corridor. The 1998 data, the most recent available, is useful in determining possible bottlenecks to freight movement. In order to be considered a freight bottleneck area for the purposes of this study, the roadway segment must carry at least the study area average percentage of truck volumes; have a v/c ratio greater than 0.7; and have a number of accidents greater than twice the statewide average. The resulting data has been further discussed with GDOT district personnel to determine if each bottleneck still exists or has been corrected during the intervening years.

Along U.S. 280 a travel time study was undertaken as a means of identifying transportation system deficiencies (Appendix J). Given the rural nature of this corridor and the abundance of smaller towns, this methodology was found to be an ideal supplement to other methods.

Interviews were held with shippers, receivers, and carriers during Phase 1 of the Central Georgia Corridor Study. Other stakeholders, among them the Port of Savannah, metropolitan planning organizations, regional development centers, and chambers of commerce also provided information on areas with congestion, accidents, heavy truck traffic, and bottlenecks. These "perceived deficiencies" have been mapped for comparison with other methods of determining deficiencies.

The Georgia Rural Development Council work described in detail in the Phase 1 report identified certain cities in the Central Georgia Corridor as economic engines. The recommendation made by the GRDC was to expend transportation dollars improving transportation facilities from counties with a lagging or declining economy into these cities as a means of economic development. The transportation deficiencies maps indicate facilities that, with improvement, could support economic development in the way the GRDC proposed.

Existing corridor conditions were compared to best practices to determine transportation deficiencies. Best practices were examined in the areas of roadway shoulders, bridges, intersection treatments, roadway materials, and railroad/ roadway intersections. Locations not currently utilizing best practices, but which could benefit from use of a best practice, were identified as deficient.

Along the SR 96 corridor, between Columbus and I-16, field observation data was noted and confirmed the existing deficiencies as depicted by the current volume to capacity ratio.

Conclusions

Hundreds of transportation deficiencies, as defined in this study, were found. Deficiencies in signing, marking, safety, capacity and condition were noted on the series of maps in Chapter 5. Further categorization of these deficiencies and of potential solutions will be accomplished over the months of work during Phase 3, as the study team directs its attention toward specific project solutions.

Many of the deficiencies discovered during the course of Phase 2 fall into a category of recommended best practices for future construction or rehabilitation of existing intersections, roadways or bridges. These might be shoulder widening, including the inside shoulders of interstates; bridge replacements; intersection resurfacing; railroad crossing grade separations; and whitetopping.

Other deficiencies might be categorized as projects already in the pipeline for early completion, such as GRIP projects. Also, projects in the State Transportation Improvement Program and Construction Work Program could be included in this grouping.

There are some deficiencies however, that are not addressed in the foreseeable future by any current program. As the Central Georgia Corridor Study continues into Phase 3 the focus will narrow to these projects that are in need of champions and will make a measurable difference in the ability of the region to compete in terms of freight flow and trade.

Six stakeholder meetings were held in May 2002. Stakeholders indicated additional areas of "perceived congestion" that did not meet the study team's criteria for congestion as indicated in Chapter 2. There may be areas which grow so fast that in comparison to a few years ago they do seem congested. It would appear that this may be the case in more than a few areas. However, the study team will evaluate each instance of perceived congestion.

Safety was a prime concern at all of the stakeholder meetings. Unsafe intersections and roadway conditions were pointed out by stakeholders. Intersections at the same grade as railroad tracks were specifically mentioned in many urban and urbanizing areas. Interstate interchanges with safety and/or operational needs were indicated as were improvements for military transport within the corridor.

ITS solutions were suggested for several types of traffic problems. Congestion in small downtown areas was particularly noted by stakeholders. In some cases stakeholders suggested bypassing the towns and in some instances they asked that ITS solutions be considered. Signage deficiencies were noted as were suggested locations for turn lanes, and acceleration and deceleration lanes.

Economic development roadways were also mentioned in stakeholder meetings and the completion of those roadways is universally and eagerly anticipated. Some stakeholders realized that with economic development would come additional traffic problems but believe the GRIP system will handle such problems.

As with most planning studies, it is difficult to excite citizens to meet on transportation studies, much less a freight transportation study. Attendance was low at stakeholder meetings but a representative group was present at each meeting and those present appeared to be knowledgeable of their entire region. As indicated previously, comments will be taken into consideration as Phase 3 of the Central Georgia Corridor Study proceeds.

The Phase 2 Central Georgia Corridor Study found transportation deficiencies and discussed some solutions. In Phase 3 these deficiencies will be compared to improvement programs currently in place. Deficiencies with no identified project will be evaluated and prioritized. Projects will be developed to mitigate or remove each deficiency. Such projects may include roadway improvements, ITS solutions or rail improvements. These projects will be tested and alternatives will be developed as needed. The Phase 3 report will delineate a prioritized package of projects for GDOT to consider for implementation and will discuss possible funding alternatives. A selected number of projects will include a benefit-cost analysis, sketch design and environmental field review.

Appendix A

Interviews with Current and Former Maintenance and Operations Engineers

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Interview with Phillip Allen, Former Head of Georgia DOT Office of Permits & Enforcement, Current State Traffic Safety & Design Engineer

DATE: January 4, 2002

PROJECT: High Priority Corridor Six Study
G&O Project No. 0089

SUBJECT: Interview with Interview with Phillip Allen, Former Head of Georgia DOT Office of Permits and Enforcement, to Discuss Dealing with Trucks

ATTENDEES:

Phillip Allen	GDOT	phillip.allen@dot.state.ga.us
David Low	G&O	dwlow@g-and-o.com

DISCUSSION:

1. David explained that the Office of Planning is doing a corridor study for High Priority Corridor 6, and that Day Wilburn Associates is leading a consulting team to perform the corridor study. He explained the location of the corridor and the study area in Georgia. He said that G&O has been asked to interview GDOT engineers to identify any activities they think will be needed for this high volume freight corridor.

2. Phillip said that every state should have the means to check compliance to see if you need to bring them in to check their status. When they are not compliant, which one is the deal breaker? CVISN has to have an element to check for compliance. They need an algorithm to decide whether you need to bring the truck in for inspection.

3. The transponder deal is backwards. Some companies voluntarily have transponders in their trucks and put information on them. Less than three percent of trucks have one. Trucks that have problems with compliance should be required to have a transponder.

4. An infrared system called IRIS is being considered in Georgia, Kentucky and North Carolina tested with equipment in a van. Georgia DOT is considering whether to build that equipment into weigh stations. GATI is looking into that for Georgia DOT. It seems likely that this will take place.

5. David asked whether fog detection equipment should be used in rural South Georgia. Phillip said coastal Georgia has a fog issue. Weigh stations are a convenient location to bring data back from.

6. Some states have virtual weigh stations using weigh-in-motion (WIM) scales on the mainline lanes. The faster the vehicle the less accurate the WIM. Outside of Tampa the truck traffic is overwhelming. It is easy to check if a truck is over height with a photoelectric beam. Research suggests using low powered lasers mounted over lanes and pointed downward to tell exactly what went underneath it. They can check for height, width, length, axle weight and gross vehicle weight. Phillip would like Georgia DOT to have several here in metro Atlanta. He would like Georgia DOT to have a virtual weigh station in Columbus. He said to look at the continuous count stations with a percentage of trucks in the Columbus area.

7. Phillip said to plan and design the HP6 mainline to provide truckers with a route that is better, faster and cheaper.

8. Consider truck lanes. Are any needed in the Savannah area?

9. David asked Phillip if he thought a pair of truck weigh stations will be needed on the HP6 mainline between Columbus and I-75. Phillip does not expect that there are going to be that many trucks on the HP6 mainline. Once we know the existing and expected increase in truck traffic, look at something less than a full truck weigh station because of the investment. Trucks are a little more captive on the freeway than they will be along HP6.

10. Phillip is more concerned about the safety aspect of drivers coming out of Mexico. Some inspection facilities would be in order, with safe entry and exit lanes, more like a climbing lane. He sketched a lane parallel to the mainline built of Portland Cement Concrete, separated with a crosshatched painted island. The exit lane has about a 600 foot taper and is up on about a two to three percent upgrade, the middle area for inspection is long and flat, and the entry back onto the mainline is about a two to three percent downgrade with about a 600 foot taper. He said Georgia DOT has a detail of this somewhere. He said some of these should be built along HP6 between Columbus and I-16. Then later determine if you need a pair of weigh stations. In the interim provide a very small shack type of building. They may want infrastructure and a computer.

11. The cost of operating a weigh station in terms of manpower is not that much of a help to you. The purpose of the weigh station is compliance.

12. Phillip and Georgia DOT want some small facilities where they can check trucks. He would like to see at least two in each direction between Columbus and I-16. Enforcement would also run mobile teams on parallel routes.

13. He would not go for any state operated rest areas along this particular corridor.

14. He suggested using Highway Advisory Radio (HAR) for communicating with drivers. He said to blanket Columbus, Fort Valley, Macon, Dublin and Savannah, the I-16/SR 96 interchange (because of options), and the US 280 corridor as well. It could give information on weather, travel time, and how to get permits if not

in compliance (in Columbus and Savannah) even if it's just a phone number to call. We need to provide one stop shopping for truck permits, tags, etc. Do this by CVISN again. Use HAR for this.

15. Talk with Ed Crowell, Director of the Georgia Motor Trucking Association at 404-876-4313. Also Guy Young – talk with him first.

16. Phillip's other suggestions for the HP6 mainline route were to keep school buses off the route, increase the speed limit and/or the design speed (to make this a more attractive route to truckers), and as much as possible make this a convenient, separate route for trucks with grade separations.

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Interview with Dale Brantley, District 2 Maintenance Engineer

DATE: January 10, 2002

PROJECT: High Priority Corridor Six Study
G&O Project No. 0089

SUBJECT: Interview with Dale Brantley, District 2 Maintenance Engineer to Discuss Georgia DOT Maintenance Activities

ATTENDEES:

Dale Brantley	GDOT	dale.brantley@dot.state.ga.us
David Griffith	GDOT	david.griffith@dot.state.ga.us
Jeff Carroll	G&O	jcarroll@g-and-o.com

DISCUSSION:

1. What are your normal maintenance activities in your district?

Dale Brantley discussed how they inventory all state routes and identify deficiencies on the roadways. The district maintenance personnel resurfaces roadways, patches roadways, repairs shoulders and drainage structures routinely during the year. They calculate a Paces rating along the state route system in the district. This rating number ranges between 100 and 0 and it provides us with a priority list of the most pressing needs on the system in the district. A Paces rating below 70 places that section of roadway on a priority list for immediate attention. Traffic volume, truck percent and urban/rural characteristics are taken into account when numerous sections fall below a 70 rating. The higher volume roads with heavier truck traffic in urban areas will take priority. Funding for the repairing the state route system is usually from a lump sum allocation using federal and state monies.

2. What activities do you think will be required for heavy truck movement anticipated with HPC 6?

Dale mentioned that portions of the concrete slabs along I-16 need to be resealed, shoulder joints need to be sealed, broken concrete slabs need to be repaired and guardrails need to be installed or repaired. Dale noted that overnight truck parking is a problem in the district that needs to be addressed along I-16 between Macon and Savannah. Currently, there are 2 rest areas in District 2 and there no weigh stations and this poses a problem for truckers needing an area to stop for their required rest. Truckers use the ramps on the interchanges along I-16 to park overnight and this has led to the deterioration to the ramp shoulders. The district has a major problem keeping the ramp shoulders maintained. When the district repairs the shoulders, they usually try and widen the shoulder to increase sight distance on the ramp but this has led to increased overnight truck parking. The trucks also knock down the signs on the ramps, which require district maintenance personnel to re-sign the area numerous times throughout the year.

Dale said that the Department signs the ramps for no parking, and it is an ordinance, but there is little local enforcement because there are not enough adequate truck rest areas along I-16 and truckers are required to rest a certain number of hours a day.

3. Are there any specific projects planned along the designated HPC6 and US 280 routes and connecting roads to improve the flow of heavy truck traffic?

David Griffith said there are numerous projects in the Construction Work Program (CWP) identified for improvements along the HPC 6 mainline and connecting road system.

- SR 257/I-16 interchange
- SR 257 passing lanes
- SR 257 widening project toward Dublin
- SR 199/SR 29 interchange with I-16 will be upgraded
- SR 257/SR 338/ SR 19 interchange with I-16, interchange work
- US 1- GRIP corridor
- US 280 3-laning project through the Milan city limits only.
- ITS message boards and call boxes along I-16
- The interchange work will consist of repairing shoulders, paving and improved channelization to provide more efficient travel.

4. Are there any specific area along the HPC 6 and the US 280 corridor which need improvement and is not in the Department's program?

   Dale mentioned that I-16 is a hurricane evacuation route and to better accommodate traffic evacuating from the coast some bridges need guardrails on the trailing edge to increase safety. Dale noted that most of the funding would come from safety funds but the Federal Government has set aside some funding to upgrade hurricane evacuation routes for this purpose. Dale said that the I-16 pavement is nearing the end of its life expectancy. If truck traffic increases along I-16 this will further reduce the life expectancy of the pavement and resurfacing and replacing concrete slabs will occur sooner. David said most of the needs along the HPC 6 study area are addressed in the CWP.

5. Do you know of any new technologies that would help the Department deal with heavy truck traffic anticipated with HPC6?

   Maintenance technologies:

   Dale said that they are using Superpave mixes more. Superpave is a harder mix to work with and it is not the best to overlay on concrete. But Buddy Gratton would rather have us do a total concrete slab replacement instead of overlaying Superpave on concrete. Dale noted that all of the new technologies come through the research lab in Atlanta. They have several test areas along I-16 in our district on roadway sealants, paving, and reflectivity technologies.

   Other technologies:

   David mentioned that there are several ITS projects along the interstate that will add cameras, and message boards. But they were not aware of any other new technologies that would assist with heavy truck traffic along HPC 6.

6. Since most interstates have Portland cement concrete (PCC) pavement, should we use PCC pavement for the HPC 6 mainline?

   Dale said that any pavement rehabilitation on I-16 will remain PCC. Dale mentioned that overlaying asphalt on concrete cause 2 problems. Thermal expansion of concrete occurs under the asphalt and the concrete cannot be sealed and then even pavement occurs due to thermal expansion. Dale noted that all interchange ramps are PCC and will to be maintained concrete. The secondary routes are asphalt, due to cost these routes will probably remain asphalt facilities and life expectancy for these secondary roads will depend on the traffic volume and the percentage of trucks. Asphalt will last on average 5-10 years where PCC will last 30 years depending on traffic volume and truck percent.

7. In your opinion, what type of pavement design should we use for a roadway that carries heavy truck volumes?

   Dale noted that concrete would be the best to use but our asphalt typical sections are not too bad in our district. All key intersections that carry high traffic volumes and especially high truck volumes need to be “whitetopped”. Currently, District 2 is not whitetopping any intersections. District 5 has done “whitetopping” for several years and it has been very successful. Whitetopping requires milling out the asphalt and replacing it with concrete. This prevents rutting at key intersections where trucks are stopping and starting with heavy loads. You need to have about 4-5” of asphalt existing over the concrete for whitetopping to withstand the heavy truck volumes. Dale said that they will to start whitetopping some key intersection in the district soon.

8. In your opinion, what design standard should be used on a roadway which carries a large volume of trucks?

   Wider inside & outside shoulders? Yes
   More heavy duty pavement? Yes.
   Larger clear zone? Yes.

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Interview with Barry Brown, Principal Structural Engineer for Browder + LeGuizamon

DATE: January 7, 2002

PROJECT: High Priority Corridor Six Study
G&O Project No. 0089

SUBJECT: Interview with Barry Brown, Principal Structural Engineer for Browder + LeGuizamon to Discuss Freight Related Bridge Deficiencies

PARTICIPANTS:

Barry Brown	Browder + LeGuizamon	404-851-9580 ext 249
David Low	G&O	770-956-8510 ext 252

DISCUSSION:

1. David introduced the High Priority Corridor Six project and its objective to prepare for heavier freight movements. He asked how we could identify bridges with structural deficiencies that may need to be upgraded or replaced to carry more trucks.

2. Barry described the load limits in detail. For HS-20 loads, the two rear axle loads are 32,000 pounds/axle spaced 14 feet apart. The front axle load is 8,000 pounds.

3. For HS-25 loads, the two rear axle loads are 25% more: 40,000 pounds/axle spaced 14 feet apart. The front axle load is 10,000 pounds. So far, Georgia has not used HS-25. Buddy Gratton in Maintenance or Paul Liles in Bridge Design are good sources of information. Generally speaking, if a bridge has been designed for HS-20 loads, it is going to be adequate.

4. Dave asked Barry to differentiate between H and HS loads. Barry said that H-15 and H-20 loads are two axles, like moving van (single unit truck). HS loads are trucks with three axles. An HS-15 load has 6,000 pounds on the front axle (15/20 of the HS-20 load).

5. For steel bridges, fatigue is going to be a factor. The Bar 7 program does a rating on the bridge.

6. If the bridge was designed for H-15 loads, generally Georgia DOT will widen it and say it is likely replaced.

7. To complicate it further, if the sufficiency rating is 50 or below, the bridge is going to be replaced anyway. The closer to 50 it is, the more likely it is going to be replaced. Barry said, in his opinion, if the sufficiency rating is down around 60, it is a probable candidate for replacement.

8. There is a person at GDOT whose job it is to route heavy vehicles through the state, and Barry thinks they have a catalog of all the HS-20 bridges. Call Brian Summers or Buddy Gratton to find out who this person is. It used to be Joe Peroski, but he retired.

9. Barry has a feeling most of I-16 is HS-20 with sufficiency ratings of 70 or above. Some of the side roads with bridges over I-16 are steel bridges.

10. Structural steel continuous bridges have one continuous beam covering three or four spans. When one span is loaded in compression, the other spans are in tension. Any continuous steel bridges are candidates for possible replacement where there are more trucks than in the original design.

Interview with Allan Childers, Retired Georgia DOT Director of Operations and State Maintenance Engineer

DATE: January 24, 2002

PROJECT: High Priority Corridor Six Study
G&O Project No. 0089

SUBJECT: Interview with Allan Childers, retired GDOT Director of Operations and State Maintenance Engineer to Discuss Georgia DOT Maintenance Activities. Currently Mr. Childers is a consultant to the American Concrete Pavement Association.

ATTENDEES:

Allan Childers	ACPA	fchilder@bellsouth.net
Jeff Carroll	G&O	jcarroll@g-and-o.com

DISCUSSION:

1. What activities do you think will be required for heavy truck movement anticipated with HPC 6?

   Asphalt generally lasts between 8 and 10 years depending on traffic volumes and truck percentages. Asphalt will rut in areas of high truck volumes and provides a rough surface and it can reduce safety along a roadway. For 2 lane roadways that are currently asphalt, if that facility will be improved the Department should evaluate constructing the additional two lanes of concrete.

2. Do you know of any new technologies that would help the Department deal with heavy truck traffic anticipated with HPC6?

   Pavement technologies:

   Ultra thin whitetopping (UTW) has been used very successfully on roads that carry high traffic and truck volumes. If there is not enough structural base under the UTW it will not last very long. The key is a good base, if the base is not structurally designed for the traffic and truck volumes, full depth concrete should be evaluated in determining the pavement design for roadways with high truck traffic. AT least 3-4 inches of asphalt under the concrete would be needed depending on the pavement design. A 4 inch UTW will eliminate rutting in high truck traffic areas.

Roller compacted concrete pavement has been out for a few years and it is a great product to use on shoulders, truck weigh stations, rest areas. This product could be used when constructing full depth shoulders. It is not designed for speeds and thus is not used on roadways. Using RCC has been very successful in industrial parks.

Long Term Pavement Program:

Two-thirds of the State DOT's will have to adopt the 2002 Design Guide to put it into use. At the earliest it won't be adopted for about 3 to 5 years.

3. In your opinion, what type of pavement design should we use for a roadway that carries heavy truck volumes?

   A crushed stone base between 6-12 feet depending on traffic, soils and location. If there is a large percent of trucks use 4 inches of econocrete or asphalt base and then a 10-12' concrete slab.

4. In your opinion, what design standard should be used on a roadway which carries a large volume of trucks?

   Wider inside & outside shoulders?

   Rollaer Compacted Concrete could be sued on full depth shoulders; it would cost less than PCC and can withstand large truck volumes.

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Interview with Rick Deavers, State Research Engineer

DATE: January 10, 2002

PROJECT: High Priority Corridor Six Study
G&O Project No. 0089

SUBJECT: Interview with Rick Deavers, State Research Engineer to Discuss Georgia DOT Research

ATTENDEES:

Rick Deavers	GDOT	rick.deavers@dot.state.ga.us
David Low	G&O	dwlow@g-and-o.com

DISCUSSION:

1. David explained that the Office of Planning is doing a corridor study for High Priority Corridor 6, and that Day Wilburn Associates is leading a consulting team to perform the corridor study. He explained the location of the corridor and the study area in Georgia. He said that G&O has been asked to interview the GDOT maintenance engineers, pavement engineer and research engineer to identify current activities, inquire about new technologies and any activities they think will be needed for this high volume freight corridor.

2. Rick said it might be appropriate to have a lesser standard on the connecting roads than on the mainline. He suggested talking with Jim Kennerly about standards for connecting roads. He said to talk with Mike Cown. Consider passing lanes for two lane connecting roads.

3. Rick is a big advocate of semi-permanent truck weigh stations with pits for axle scales depending on the volumes projected.

4. Rick said the design of paved shoulders is for cars. Georgia DOT may need to be beef up the structural capacity of paved shoulders and consider wider shoulders.

5. Twin trailers cause special problems. Talk with Traffic Operations.

6. Regarding new maintenance technologies, Rick said in the design process, there are features you can incorporate that might have to be addressed otherwise. Maintenance features should be incorporated into the design process to make maintenance easier. There are at least 20 committee reports on this. Buddy Gratton would know which TRB subcommittees have addressed this. It's 3 to 4 years old. Do a search on building maintenance features into the design process. Talk with the feds. That is usually the fastest way to find out. Call the TRB sub chairman or FHWA for Ongoing Research. There is a TRIS on Ongoing Research in that area.

7. Georgia DOT is doing a truck routing permit program. James Sigh at Georgia Tech will take the truck routing program and computerize it. If you have super loads, over 150,000 pounds, the bridges have to be looked at (Bill Duvall in the bridge maintenance office does this). You will get the occasional super load. There is a brand new research project that will start in February making it infinitely easier for trucks to travel. Bill DuVall is the head of the research project.

8. Rick mentioned several other notable items including COPACES, the computerized pavement condition survey. He said don't let trucks use the new super single high-pressure tires. They will tear up our roads.

9. He said all trucks carrying hazardous materials should have transponders so we can track them.

10. At airports, are trucks getting off the mainline and picking up loads?

11. New bridge design criteria are coming out: LRDF. It is supposed to be mandated by the Feds by 2003. New bridges may have to use the new bridge design process.

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Interview with John Durand, Chief Structural Engineer for Parsons Brinckerhoff

DATE:	January 4, 2002		
PROJECT:	High Priority Corridor Six Study G&O Project No. 0089		
SUBJECT:	Interview with John Durand, Chief Structural Engineer for Parsons Brinckerhoff to Discuss Freight Related Bridge Deficiencies		
PARTICIPANTS:	John Durand David Low	Parsons Brinckerhoff G&O	404-364-5236 770-956-8510 ext 252

DISCUSSION:

1. David introduced the High Priority Corridor Six project and its objective to prepare for heavier freight movements. He asked how we could identify bridges with structural deficiencies that may need to be upgraded or replaced to carry more trucks.

2. John described how the GDOT Maintenance Division does an inventory of bridges. Their inventories include an evaluation of all components of the bridge including the maximum load limit. Beyond that they do a structural analysis. Sometimes they specify the load limits for each structure (and/or speed). Sometimes they do this also for special permitted loads. Each situation has to be considered on a case-by-case basis.

3. One has to consider the maximum load bridges are designed for. All bridges today in Georgia and for some time have been designed to carry HS-20 loads. The older ones were designed for HS-15 or h-15 loads. The older ones are usually fine, but may have some damage occurring to them. One can look at the GDOT website for bridges posted with load limitations.

4. Bridges on the HP6 mainline and connecting roads are not expected to experience increased loads, but increased frequency instead. This affects fatigue life, which only affects steel bridges. Generally fatigue is not a problem with concrete beam bridges. This is addressed in Chapter 10 of the AASHTO bridge specifications. Theoretically shortening the bridge life warrants heightened inspection of these bridges, and correcting problems at the time they are discovered. Engineers try to design steel bridges for a certain number of cycles of fatigue. This is a best guesstimate. Georgia DOT inspects for this every two years with an in depth examination looking for fatigue stress cracks.

5. With concrete beams, if you had loads that exceeded the maximum, it would be a problem, but that is not the case. A concrete bridge may get some deck deterioration due to an increased amount of traffic.

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Interview with Bill DuVall and Brian Summers, State Bridge Inspection Engineer and State Bridge Engineer

DATE: January 8, 2002

PROJECT: High Priority Corridor Six Study
G&O Project No. 0089

SUBJECT: To acquire bridge inventory information on the HPC 6 Project and help create a methodology to identifying candidates for bridge improvements.

PARTICIPANTS:

Bill DuVall	GDOT	404-635-8189
Brian Summers	GDOT	Brian.Summers@dot.state.ga.us
Nik Kharva	G&O	770-956-8510 ext 252

DISCUSSION:

1. Mr. DuVall was able to provide information on how GDOT inventories bridge information by categorizing bridge date using a bridge ID number. With the bridge ID number pertinent bridge information can be searched. A bridge ID number can be found using the following information (county, mile posting, route name and crossing route/landmark information). With the bridge ID number, various information for identification and parameters are identified. These identification information are explained using the NBIS coding guide (This guide is will be useful to anyone who receives Structural Inventory and Appraisal (SIA) information from Bridge Maintenance.). This guide can be found at (http://www.dot.state.ga.us/homeoffs/bridge_info.www/index.htm).

2. Sufficiency rating is a variable that can be used to help determine a methodology to identify candidates for bridge improvements but should not be used as a sole determining factor.

3. Other factors are important in determining bridge improvements such as shoulder width.

4. Question: If a bridge had a load rating of H15/HS15 and the bridge is widen and a higher load rating is applied, is there a way to identify these bridges.

   Answer: If an existing bridge with a lower load rating is widened and a higher load rating is applied. The existing lower rating will be noted on the bridge inventory and not the higher rating. To find out that this has taken place, looking up the project plans will allow you to determine this information.

5. Mr. DuVall and Mr. Summers helped identify the various parameters that we noted as an identifier for bridge improvements. Comments were made on certain parameters that G-and-O noted that were not pertinent and advised on not querying. Both of them agreed to provide us with a database file on Access

2000 of all relevant bridge inventory information requested of all the state routes in the study counties. A list of the counties and the routes was provided to them for querying. It was beneficial for GDOT and G-and-O to get “all” routes in the county area since the connector have not been validated at the time of this meeting. Having the information of all the state routes will allow G-and-O to be flexible with querying. The list of county and routes are listed below:

Below are the counties of interest in finding the bridge inventory:

1. Muscogee
2. Talbot
3. Taylor
4. Crawford
5. Peach
6. Houston
7. Twiggs
8. Bleckley
9. Laurens
10. Treutlen
11. Emanuel
12. Candler
13. Bulloch
14. Bryan
15. Effingham
16. Chatham
17. Sumster
18. Crisp
19. Bibb
20. Tombs
21. Stewart
22. Harris
23. Upson
24. Pulaski
25. Montgomery
26. Liberty
27. Webster
28. Evans
29. Chattahoochee

Below are the routes of interest in finding the bridge inventory information:

1. SR 22
2. US 80
3. SR 96
4. I-16
5. SR 219
6. I-185

7. SR 411
8. SR 1
9. SR 27
10. SR 85
11. US 280
12. SR 520
13. SR 3
14. US 19
15. SR 128
16. US 341
17. SR 7
18. SR 49C
19. I-75
20. SR 401
21. SR 11
22. I-475
23. I-16
24. US 129
25. SR 247
26. SR 87
27. SR 26
28. US 80
29. SR 19
30. SR 844
31. US 319
32. US 441
33. SR 31
34. US 319
35. SR 29
36. SR 279
37. US 280
38. US 1
39. SR 121
40. SR 23
41. SR 129
42. US 25
43. US 301
44. SR 24
45. SR 67
46. SR 73
47. SR 30
48. SR 119
49. SR 21
50. SR 26
51. SR 307
52. I-95
53. SR 405
54. US 84
55. SR 38

56. SR 196
57. SR 38C
58. I-516
59. SR 25C
60. SR 204
61. SR 404
62. US 17
63. SR 27
64. SR 15

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Interview with Buddy Gratton, State Maintenance Engineer

DATE:	December 27, 2001
PROJECT:	High Priority Corridor Six Study G&O Project No. 0089
SUBJECT:	Interview with Buddy Gratton, State Maintenance Engineer to Discuss Georgia DOT Maintenance Activities

ATTENDEES:			
	Buddy Gratton	GDOT	buddy.gratton@dot.state.ga.us
	David Low	G&O	dwlow@g-and-o.com

DISCUSSION:

1. David explained that the Office of Planning is doing a corridor study for High Priority Corridor 6, and that Day Wilburn Associates is leading a consulting team to perform the corridor study. He explained the location of the corridor and the study area in Georgia. He said that G&O has been asked to interview the GDOT maintenance engineers to identify current maintenance activities, inquire about new maintenance technologies and any activities they think will be needed for this high volume freight corridor.

2. Buddy said the military just did a study of base to base movements from Columbus to Savannah. Dana Robbins from FHWA was one of the main contacts. Talk with Heather Alhadeff at 404-562-3637. GDOT Bridge Maintenance's Bill Duvall went on this inspection team. There were no issues with the bridges.

3. David asked about Georgia DOT's normal maintenance activities. Buddy said the GDOT Maintenance Office does a pavement evaluation every year for every mile of roadway on the state system. They do an inventory and from that evaluation they prepare project priorities. Bridge maintenance follows BMIS (Bridge Maintenance Information System) procedures. They look at pipes and culverts below bridges. These are asset inspections, logging deficiencies. They inspect edge drop-offs, signs, guardrail, etc. All of these modules are linked through the Highway performance monitoring System (HPMS). He can pull up deficiencies to see if they have been corrected.

4. David asked what activities he thinks will be required for the heavy truck movements anticipated with HP6. Buddy said it would be no different than for an interstate or a major divided highway.

5. David asked about specific projects planned along HP6 and US 280 and connecting roads to improvement the flow of heavy truck traffic. Buddy said other than the Construction Work Program (CWP), only a few projects come to mind. There is a striping project (on I-16?). They just did a concrete rehabilitation project on I-16 about three years ago so it's in good shape. They built some crossovers for hurricane evacuation near Dublin. One near Savannah will be let soon.

6. David asked if he knew of any new technologies that would help them deal with heavy truck traffic anticipated with HP6. Buddy said nothing more than we would do on a normal interstate job.

7. They talked about bridge sufficiency ratings. Buddy explained that 0-50 qualifies for replacement. 50-80 is functionally obsolete narrow bridges that qualify for bridge rehabilitation money (BH). Above 80 is adequate. Bill Duvall is in charge of bridge inspection and works for Brian Summers.

8. For railroad grade crossings, Buddy said he would highly encourage the installation of precast concrete panels. They just made a decision and worked out a deal with Norfolk Southern, split funding them working through a force account agreement. Norfolk Southern does the construction and Georgia DOT reimburses them for 50% of the cost. Buddy said we may need to be providing grade separations over railroads.

Interview with Chad Hartley, District 5 Assistant Maintenance Engineer

DATE: January 10, 2002

PROJECT: High Priority Corridor Six Study
G&O Project No. 0089

SUBJECT: Interview with Chad Hartley, District 5 Maintenance Engineer to Discuss Georgia DOT Maintenance Activities

ATTENDEES:

Chad Hartley	GDOT	chad.hartley@dot.state.ga.us
Jeff Carroll	G&O	jcarroll@g-and-o.com

DISCUSSION:

1. What are your normal maintenance activities in your district?

   We evaluate all the entire state route system for deficiencies. District personnel evaluate the roadways with the Paces program. We also do a concrete survey which includes interchanges and ramps. We do bridge inspection on all state routes and county roads in the district. As far as our maintenance activities: Drainage structures, Shoulder building, replace concrete slabs, sign repair and installation. We have 6 area offices that handle routine maintenance. The district has 3 special outfits: bridge, asphalt and sign shops. We also mow on the state route system.

2. What activities do you think will be required for heavy truck movement anticipated with HPC 6?

   Whitetopping at key intersections will be needed to reduce continual maintenance. The shoulder pavement should be 4 feet wide. We will need to widen and resurface some roadways and we should use a Superpave with a strong GAB. We should use tape instead of thermal plastic stripping on the roadway and all roadways need raised pavement markers (RPM). Currently there are a few bridges that have 10 foot lanes and they need to be brought up to state standards, 12’ lanes. One of the main reasons there are 10’ lanes in the district is because culverts need to be extended and without this extension we cannot widen to roadway. The secondary roads should also have 4 foot shoulders. Shoulder ramp work is definitely need, trucks are deteriorating the ramps along I-16 interchanges because there is not enough truck parking along the corridor. There are no rest areas along I-16 in the district but they may be one planned for the median around Statesboro. There are 2 truck weigh stations on I-16 in the district and DOT enforcement sets up mobile units along some interchanges in the district.

3. Are there any specific projects planned along the designated HPC6 and US 280 routes and connecting roads to improve the flow of heavy truck traffic?

   Refer to the Department's Construction Work Program (CWP).

4. Are there any specific area along the HPC 6 and the US 280 corridor which need improvement and is not in the Department's program?

   Culvert expansion and bridge widening projects are needed along the US 280 corridor. Guardrails are needed on roadways with 10 foot lanes, culvert expansion will be needed to widen these roadways to state standards. Four foot paved shoulders along numerous high volume roadways will be needed.

5. Do you know of any new technologies that would help the Department deal with heavy truck traffic anticipated with HPC6?

   Maintenance technologies:

   Superpave has real good __________ but it is too coarse and water comes up through it. Whitetopping cuts down on maintenance on high volume and heavy truck traffic intersections. Whitetopping is also good to use in swampy areas in the district because the subgrade gets "bouncy" and this deteriorates the road more rapidly. Whitetopping prevents the roadway from cracking, rutting and tearing and whitetopping requires less maintenance attention.

   Other technologies:

   I-95 has fog detection and maybe some areas of I-16 that could benefit from fog detection. Pavement surface detection devices would be a good technology to use on the interstates and this information could be relayed onto message boards to provide motorist the latest road conditions.

6. Since most interstates have Portland cement concrete (PCC) pavement, should we use PCC pavement for the HPC 6 mainline?

   If the Department could afford PCC it would be the best material to use. However, a GAB and a Superpave mix will last between 5-7 years on a roadway that carries large truck traffic.

7. In your opinion, what type of pavement design should we use for a roadway that carries heavy truck volumes?

   If cost is not an option PCC should be used. But a good G.A.B. Superpave mix will be adequate along a high volume roadway. The GAB should be lime rock or granite.

8. In your opinion, what design standard should be used on a roadway which carries a large volume of trucks?

   Wider inside & outside shoulders? Yes, Paved shoulders always reduce required maintenance.
   More heavy duty pavement? Yes.
   Larger clear zone? Yes.

9. Are the roads being torn up in and around the Savannah Port area? Why?

   Yes, the roadway pavement in and around the port area historically deteriorates very rapidly. The turning radius at key intersections in the port area is not adequate enough to provide turning movements for trucks accessing the port facility. There were several key intersections in the port area being repaired every 4 months. However, 4 years ago the district whitetopped these key intersections and since this improvement no maintenance activities have been needed. Whitetopping has been very successful in maintaining the roadways in the port area and we will be using this technology at other intersections in the district requiring ongoing maintenance attention. Whitetopping can be done within 24 hours. There are noise restrictions at night in the City of Savannah and this requires us to do some of the maintenance work during normal business hours. There are numerous old brick crossings in Savannah and we cannot remove these historic bricks. Amazingly, the bricks hold up well under conditions of high traffic volumes.

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Interview with Tommy Hicks, District 4 Assistant Maintenance Engineer

DATE: January 4, 2002

PROJECT: High Priority Corridor Six Study
G&O Project No. 0089

SUBJECT: Interview with Tommy Hicks, District 4 Assistant Maintenance Engineer to Discuss Georgia DOT Maintenance Activities

ATTENDEES:

Thomas Howell	GDOT	thomas.howell@dot.state.ga.us
Jeff Carroll	G&O	jcarroll@g-and-o.com

DISCUSSION:

1. What are your normal maintenance activities in your district?

   Repair potholes, repair edge ruts, repair any base failures, repair any accident damage (guardrail, sighs, etc.).

2. What activities do you think will be required for heavy truck movement anticipated with HPC 6?

   Tommy said no additional activities for US 280 will be required.

3. Are there any specific projects planned along the designated HPC6 and US 280 routes and connecting roads to improve the flow of heavy truck traffic?

   There are none that I am aware of on US 280.

4. Are there any specific area along the HPC 6 and the US 280 corridor which need improvement and is not in the Department's program?

   On US 280, 16^{th} Avenue in the Cordele needs to be improved.

5. Do you know of any new technologies that would help the Department deal with heavy truck traffic anticipated with HPC6?

   Maintenance technologies:

   Whitetopping: Concrete overlay of intersections at traffic lights. This would stop the pushing and0corrugation of pavement at the intersection.

   Other technologies:

   Not aware of any

6. Since most interstates have Portland cement concrete (PCC) pavement, should we use PCC pavement for the HPC 6 mainline?

   Not necessarily, asphalt will perform as well; there is more maintenance and resurfacing with asphalt. PCC would be preferred but usually it is cost prohibitive.

7. In your opinion, what type of pavement design should we use for a roadway that carries heavy truck volumes?

   7" base asphalt or 8" GAB with 3" asphalt base then 2" binder asphalt and then 1 1/2 "asphalt surface mix.

8. In your opinion, what design standard should be used on a roadway which carries a large volume of trucks?

   Wider inside & outside shoulders? Yes, Paved shoulders always reduce required maintenance.
   More heavy duty pavement? Yes.
   Larger clear zone? Yes.

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Interview with Thomas Howell, District 3 Maintenance Engineer

DATE: December 31, 2001

PROJECT: High Priority Corridor Six Study
G&O Project No. 0089

SUBJECT: Interview with Thomas Howell, District 3 Maintenance Engineer to Discuss Georgia DOT Maintenance Activities

ATTENDEES:

Thomas Howell	GDOT	thomas.howell@dot.state.ga.us
Jeff Carroll	G&O	jcarroll@g-and-o.com

DISCUSSION:

1. What are your normal maintenance activities in your district?

   Thomas discussed how his personnel every year perform a test of the entire state route system in the district. This test provides a Paces rating and this rating decides what routes will be resurfaced. Anything below a 70 on the paces rating results in the route being placed on a list for resurfacing. After the route is on the list, the Department will analyze the traffic and truck percentages to prioritize resurfacing. Thomas noted that the information is inputted into the HMMS database, which is maintained by the Department's maintenance office. Thomas said that constructing shoulders on a route could be considered a maintenance project depending on the funding source.

2. What activities do you think will be required for heavy truck movement anticipated with HPC 6?

   Thomas said the roads will have to be maintained more often due to the increased amount of truck traffic projected. Currently, the Department resurfaces, on average, every 10 years but with added truck traffic the average will be less than every 10 years. There are some state routes in the district that require resurfacing every 6 years because of the high volume of truck traffic. Funding is a major issue on resurfacing. Currently about 75 percent is Federal and the remaining 25 percent is state. The Department tries to use federal funding for all 4-lane roadways. STAA/NHS roadways are prioritized the same as non-truck routes, everything is based from the paces rating. If cost were not a question then it would be wise to construct heavy truck corridors with PCC and not asphalt. But since funding is an issue we can increase the asphalt and rock base. Right now the interstates have 4-6 inches more graded aggregate base (GAB) and 4-6 inches more asphalt than the GRIP system roadways. The typical GRIP roadway will have 8-10 inches of GAB and 6-7 inches of asphalt.

3. Are there any specific projects planned along the designated HPC6 and US 280 routes and connecting roads to improve the flow of heavy truck traffic?

   SR 96 east of I-75 to I-16 is in the program.

4. Are there any specific area along the HPC 6 and the US 280 corridor which need improvement and is not in the Department's program?

   SR 96 from Fort Valley to I-75 is not in the program.

5. Do you know of any new technologies that would help the Department deal with heavy truck traffic anticipated with HPC6?

   Maintenance technologies:

   The district uses micro seals and slurry seals in sealing cracks along the state route system and this prolongs the life of the roadway.

   Other technologies:

   Thomas was not aware of any other new technologies. Fog is not a problem in the district and no detection devices would be needed.

6. Since most interstates have Portland cement concrete (PCC) pavement, should we use PCC pavement for the HPC 6 mainline?

   Thomas said it would be a great if we could do that but we have to look at the cost. PCC is probably twice as expensive but in return you can increase the life cycle of the roadway dramatically. Asphalt usually last about 10 years, PCC lasts between 30 and 50 years. The asphalt that is used on the interstates is open graded friction coarse or a European type of mix (water runs through/off surface). Both are a ¾ inch thick overlay. Thomas said to receive more information on these types of mixes, contact the Maintenance office in Atlanta. Thomas noted the state route system is a super pave mix.

7. In your opinion, what type of pavement design should we use for a roadway that carries heavy truck volumes?

   The first option should be PCC but we are limited with our funding. Second would be 12 inches of GAB and 12 inches of asphalt capped off with an opened graded mix. There is a pavement design committee that makes the decision on what type of surface will be used for all roadway projects.

8. In your opinion, what design standard should be used on a roadway which carries a large volume of trucks?

   Wider inside & outside shoulders? Yes
   More heavy duty pavement? Yes.
   Larger clear zone? Yes.

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Interview with Jerry Morris, Georgia DOT Road Design Squad Leader in Charge of Designing Truck Weigh Stations

DATE: December 27, 2001

PROJECT: High Priority Corridor Six Study
G&O Project No. 0089

SUBJECT: Interview with Jerry Morris, Georgia DOT Squad Leader in Charge of Designing Truck Weigh Stations, to Discuss Potential Truck Weigh Stations

ATTENDEES:

Jerry Morris	GDOT	jerry.morris@dot.state.ga.us
David Low	G&O	dwlow@g-and-o.com

DISCUSSION:

1. David explained that the Office of Planning is doing a corridor study for High Priority Corridor 6, and that Day Wilburn Associates is leading a consulting team to perform the corridor study. He explained the location of the corridor and the study area in Georgia. He said that G&O has been asked to interview the GDOT engineers to identify any activities they think will be needed for this high volume freight corridor. David asked if Jerry thought that a pair of truck weigh stations would be needed along the HP6 mainline between Columbus and I-75.

2. Jerry gave David a map showing the locations of truck weigh stations and rest areas around the state. Jerry said that he thought a pair of truck weigh stations would be needed on the HP6 mainline between Columbus and I-75. Jerry said that a pair of truck weigh stations cost $11-12 million in 2001 dollars. A good site for a truck weigh station provides a relatively easy merge for trucks onto the adjacent road where the road is level or on a downgrade for about ½ mile. Each site requires 35 to 40 acres. Access to a local water and sewer system is preferred. Jerry said Georgia DOT is not currently putting any rest areas on the GRIP system. They are all on the interstate system.

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Interview with Robert Moses, Project Engineer for Parsons Brinckerhoff

DATE:	December 28, 2001		
PROJECT:	High Priority Corridor Six Study G&O Project No. 0089		
SUBJECT:	Interview with Robert Moses, Project Engineer for Parsons Brinckerhoff to Discuss the State of the Practice in Truck Weigh Stations		
PARTICIPANTS:	Robert Moses	Parsons Brinckerhoff	404-364-2674
	David Low	G&O	770-956-8510 ext 252

DISCUSSION:

1. David introduced the High Priority Corridor Six project and its objective to prepare for heavier freight movements. Robert has designed several truck weigh stations for Georgia DOT and knows the state of the practice locating truck weigh stations.

2. Robert said that the use automatic vehicle identification (AVI) along the freeway at truck weigh stations has changed from what was installed under the Advantage I-75 program. The truck weigh station no longer writes information, such as weight, to the truck transponder. Now, if a truck has a transponder, it has a chance of being called in to be weighed. In the past, trucks with a transponder that had been weighed upstream recently might not have to exit to be weighed again. UPS and Everett Express use transponders on their trucks. Truck weigh stations now use a random number generator, and trucks with transponders have a one in five chance of being routed into the truck weigh station to be weighed.

3. The Port could check credentials on the transponder.

4. Trucking firms didn't like firms writing information onto their transponder.

5. We next talked about the subject of truck rest areas. There is a general shortage of truck parking spaces. Drivers are only allowed to drive for a given number of hours before taking a break to rest or sleep. In rest areas, it would be useful to provide a system (such as in some parking decks) to let truck drivers know if there are any available spaces, and if not they would not have to exit but could continue to the next rest area.

6. At truck weigh stations, the current practice is to place overhead message signs one mile upstream of the exit ramp. Over height detectors are placed on the exit ramps.

7. The State of Georgia Bureau of Motor Vehicles was recently assigned responsibility for operating truck weigh stations and rest areas. Previously Georgia DOT had this responsibility through their Office of Permits and Enforcement. Dave asked Robert what he thought about putting truck weigh stations on GRIP corridors. He said they patrol the GRIP corridors already. There are higher fines for being overweight on roads that are not interstates.

8. They are putting a weather monitoring station at the Franklin County truck weigh station. It has a pavement sensor to detect ice on the roadway.

9. Dave asked Robert what should be done in the HP6 corridor to prepare for the increased truck traffic. Robert said: truck parking management and enforcement, and facilitating overnight truck parking. Currently too many trucks are parking on the roadway shoulder.

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Interview with J.T. Rabun, State Pavement Engineer

DATE: January 10, 2002

PROJECT: High Priority Corridor Six Study
G&O Project No. 0089

SUBJECT: Interview with J.T. Rabun, State Pavement Engineer to Discuss Georgia DOT Pavement Design

ATTENDEES:

J.T. Rabun	GDOT	jt.rabun@dot.state.ga.us
David Low	G&O	dwlow@g-and-o.com

DISCUSSION:

1. David explained that the Office of Planning is doing a corridor study for High Priority Corridor 6, and that Day Wilburn Associates is leading a consulting team to perform the corridor study. He explained the location of the corridor and the study area in Georgia. He said that G&O has been asked to interview the GDOT pavement engineer to identify current activities, inquire about new technologies and any activities they think will be needed for this high volume freight corridor.

2. J.T. said the pavement management branch was established within the Office of Materials and Research in September 2001 and J.T. began September 1.

3. In the Office of Maintenance, the Assistant Area Engineer does a yearly inventory of every mile of the state road system to identify stresses. More experienced maintenance personnel also review this to see if they agree with the conclusions. As soon as the asphalt pavement starts cracking, Georgia DOT overlays it, typically with 1½ inches of surface mix. They use the IRI measure of roughness. These days, Georgia DOT is resurfacing roads with much smoother roughness than they were 30 years ago. J.T. has some charts that illustrate this.

4. For flexible pavement design, Georgia DOT is still using the AASHTO 1972 Interim Guide for Design of Pavement Structures. There is a big impact from dynamic loads at bridge ends. They try to get them smooth, but a lot aren't. J.T. went through the pavement design procedures using a structural number. The proposed structural number is 90% (10% under) the required structural number. In ten years, they will add 1½ inches of asphalt, because it isn't needed during the first ten years. This is the procedure Georgia DOT uses for new flexible pavement. For the rehabilitation of existing pavement, the Pavement Evaluation Engineer takes cores

and determines the overlay required. They consider whether full depth reconstruction is necessary or milling and overlay.

5. For rigid pavement, they are trying to limit the flexural stress in the concrete. New concrete has an allowable flexural stress of 600 psi, so Georgia DOT uses 450 psi as a target. The difference is their safety factor. Failure occurs when there is loss of support with fines (fine material) pumped out through the joints. Georgia DOT now dowels all of their joints, which helps prevent pumping.

6. The typical rigid pavement design for an interstate is 12 inches of PCC over 5 inches of asphalt or econocrete (lean concrete mixture), and then 12 inches of graded aggregate base course. Graded aggregate gives a working surface for construction equipment. Econocrete eliminates the possibility of fines being pumped out.

7. J.T. talked about the activities he thinks will be required for the heavy truck movements anticipated on HP6. They inventory the pavement structure and look at the structural capacity for this type of traffic. They may try to upgrade the pavement sections throughout the HP6 corridor.

8. A faulting study was done on all Georgia DOT pavements back in the 1970's for the through lane pavement and shoulder pavement on I-16. They also got the plans. This data has a gap from milepost 11.5 (Bibb/Twiggs Counties) to milepost 32 (Bleckley County). Shoulders may have to be reconstructed on I-16 to provide full depth pavement. Buddy Gratton has asked J.T. to get full depth shoulders on everything as much as possible. Full depth shoulders are much more advantageous from a maintenance standpoint.

9. To retrofit the I-16 shoulders, J.T. said Georgia DOT would probably go back in with asphalt, probably 3½ inches over 6 or 8 inches of GAB. J.T. would have to talk with Buddy Gratton and see what his preference would be. The Office of Maintenance may have already done it.

10. If the volume of trucks on a segment of interstate is significantly heavier than the typical interstate, and if they are using flexible pavement, they may use more of a heavy-duty design to prevent rutting. The bituminous design people who work for Mike Cown can address this.

11. J.T. is looking at things Georgia DOT can do to improve their pavement design process. Are we getting the best design for our money? They spend $1 Billion annually for pavement. J.T. pulled out the 1993 AASHTO pavement design guide. Georgia DOT did not the 1993 design guide because the test procedures for soil were not valid. It updated the rigid pavement design to give credit for dowels and tied shoulders. The greatest distress is created in the outside wheel path. To address it, they give edge support to the edge of pavement and either provide a wider lane or use tied shoulders. J.T. prefers to provide a wider lane (provide a slab 14 feet wide and stripe it for 12 feet), because this design places trucks traveling 3½ feet from the edge of pavement instead of 1½ feet and thereby reduces edge stress. He referred to construction detail S-1.

12. Now there will be a 2002 design guide using a mechanistic design (LTPP), using material properties instead of road test results. There are limitations to the old procedures. There is great variability in soils. J.T. would like to look at the probabilistic approach.

13. FHWA has not pushed Georgia DOT to make a design change (from the AASHTO 1972 Interim Guide for Design of Pavement Structures). Georgia has the smoothest roads in the nation, and we have the lowest gas tax. Why make a change?

14. Georgia DOT now has COPACES, a computerized pavement condition survey, and GPAM, the Georgia Pavement Management System, developed with Georgia Tech. GPAM puts in COPACES data and based on the distresses, determines the type of pavement system needed. It uses GIS to consider different soil types, and uses the most sophisticated system for optimization. They have been doing this for almost 30 years.

15. J.T. said increasing truck tandem axle weights will decrease the service life of our pavements. 34,000 pounds on a tandem axle has an ESAL (equivalent 18K single axle load) of 1. In 1996, the Georgia legislature passed laws allowing tandem axle loads to go from 37,340 to 40,680 pounds, and that did not allow the gross vehicle weight to increase. The gross vehicle weight is capped at 80,000 pounds. Georgia is currently debating whether to allow tandem axle loads to increase to 44,000 or 46,000 pounds. J.T. provided two charts showing the relationships between tandem axle loads for asphalt pavement and either damage factors or service life. If Georgia allows an increase in the tandem axle load this year, J.T. thinks there will be a request to increase the gross vehicle weight from 80,000 to 104,000 pounds next year. He said he thinks it is a federal law that limits gross vehicle weight to 80,000 pounds.

16. When asked if he knew of any new technologies that would help them deal with heavy truck traffic anticipated with HP6, J.T. said one of the biggest things would be the mechanistic design (LTPP) to limit stresses and strains in the pavements. It is not an AASHTO design guide yet. It will require large amounts of input, contrasted with the current procedures from the 1972 Interim Design Guide, which only require a small amount of input. J.T. said we will not use it unless there is a significant benefit to it.

17. When asked if rigid pavement would make sense for a heavy truck route like HP6, J.T. said yes. He said that may end up being only my opinion. Leadership for the lab for a long time was pro asphalt. Perpetual pavement is a buzzword with FHWA. In California, instead of a 20-year pavement design life, they are looking at a 50-year design life. Asphalt pavements have to be overlaid about every 10 or 12 years. A lot of the interstate system was designed 30 years ago, is carrying much heavier volume than it was designed for, and is still in good condition. There is a place for concrete pavement and it is in high volume, high truck traffic corridors. J.T. said he doesn't know if everyone in Georgia DOT would agree with that. The HP6 corridor is a prime candidate for concrete pavement. With concrete pavement, the philosophy is: get in, get out, and stay out. J.T. said if you were building this (HP6) brand new, you would build it with concrete. It becomes a more difficult, more involved decision since it is underway, however upgrading it to concrete would be easier to do today than in the future.

18. I-285 on the east side from I-20 north to Spaghetti Junction was designed for five to six million ESALs, but has already carried 55 million ESALs. There have been no pavement failures, and there are no plans to replace the pavement.

19. J.T. said the best way to retrofit the pavement on the parts of HP6 that have already been designed is with additional asphalt. As far as he knows, all of the Fall Line Freeway is asphalt. Look at what is there, anticipate the number of additional trucks and add asphalt as needed. Depending on the design, they may need to consider the life cycle cost to compare reconstruction with concrete vs. overlaying with asphalt. Concrete should be considered for those sections that have not been let yet, but it is hard to get those people to reconsider anything. He will try to find the minutes of the pavement design committee for the Fall Line Freeway. The plans for I-16 are all on file in the Plan File Room.

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Interview with Jim Salvador and Tim Smith, Railroad Engineers

DATE: January 3, 2002

PROJECT: High Priority Corridor Six Study
G&O Project No. 0089

SUBJECT: To acquire railroad inventory information on the HPC 6 Project and help create a methodology to identifying candidates for railroad crossing upgrades.

PARTICIPANTS:

Jim Salvador	GDOT	404-635-8121
Tim Smith	GDOT	404-635-8121
Nik Kharva	G&O	770-956-8510 ext 252

DISCUSSION:

1. Mr. Salvador provided valuable information that GDOT acquires regarding railroad crossing inventory information. I had mentioned to him that it was difficult to identify what exact railroad crossing ID number corresponds to the railroad crossing on county maps. He provided me copies of county maps where railroad crossing ID numbers were identified. These maps were available for most of the counties in our study area but not all. These railroad ID numbers can be placed on the Federal Railroad Administration website to find railroad crossing parameters. (http://safetydata.fra.dot.gov/officeofsafety/Crossing/Default.asp)

2. It was noted by Mr. Salvador that the inventory data provided by the website may not be up to date. Certain information regarding railroad crossing inventory is not current or known to GDOT and an ongoing effort is made to update this information.

3. Asked Mr. Smith what are the parameters in the FRA inventory sheets and to make sure my assumption of the definitions are accurate. After talking to him pertinent inventory data was decided for collection and are listed below.

4. Pertinent information regarding Railroad Crossing:
   - Crossing Number
   - Railroad Name
   - County
   - Highway Type & Number
   - Street or Road Name
   - Crossing Type and Protection
   - Nearest City

- Railroad Milepost
- Typical Number of Daily Train Movements
- Train Activated Devices (Gates, Flashing Lights and/or Bells)
- Crossing Surface
- Nearest Intersecting Highway
- Estimated Percent Trucks

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Interview with David Studstill, Georgia DOT Director of Operations

DATE: January 4, 2002

PROJECT: High Priority Corridor Six Study
G&O Project No. 0089

SUBJECT: Interview with Interview with David Studstill, Georgia DOT Director of Operations

ATTENDEES:

David Studstill	GDOT	david.studstill@dot.state.ga.us
David Low	G&O	dwlow@g-and-o.com

DISCUSSION:

1. David Low explained that the Office of Planning is doing a corridor study for High Priority Corridor 6, and that Day Wilburn Associates is leading a consulting team to perform the corridor study. He explained the location of the corridor and the study area in Georgia. He said that G&O has been asked to interview GDOT engineers to identify any activities they think will be needed for heavy truck movement anticipated with HP6.

2. David Studstill said that almost all of the GRIP system was designed for 65 mph but some was designed for 55 mph in the early 90's coming out of Columbus. Bypass as many small towns as possible. We discussed a bypass for Cordele. He was lukewarm on rest areas run by the state. They are more of a liability than an asset. Grade separate crossings on the mainline.

3. David S. said that bottlenecks are at SR 49 and the Ft. Valley Bypass, and US 11 and SR 96. Improve the Dean Forest Road corridor with grade separations and try to go to more controlled access.

4. David L. asked if he knew of any new technologies that would help GDOT deal with heavy truck traffic anticipated with HP6. David S. said CVISN (commercial vehicles information system network) and Advantage I-75, a one stop shop where a truck gets weighed in one state and you are set up to continue through any other state until you stop.

5. David S. said that all of the enforcement folks have gone over to DMVS. DMVS is strapped for cash. The driver's license bureau is such a priority right now; enforcement hasn't had a chance to get into this yet. It is disappointing that they have put a lot of resources into things like this.

6. David S. said these kinds of improvements are really design functions, not maintenance.

7. David S. said GDOT allows two trailer trucks, though there are still some routes that don’t.

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Interview with Mike Weiner, City of Savannah Traffic Engineer

DATE: December 20, 2001

PROJECT: High Priority Corridor Six Study
G&O Project No. 0089

SUBJECT: Interview with Mike Weiner, City of Savannah Traffic Engineer to Discuss Freight Related Infrastructure Issues in Savannah Area

PARTICIPANTS:

Mike Weiner	City of Savannah	912-651-6600
David Low	G&O	770-956-8510 ext 252

DISCUSSION:

1. David introduced the High Priority Corridor Six project and its objective to prepare for heavier freight movements. He asked about areas that would need to be upgraded to prepare for heavier truck movements.

2. Mike said that Dean Forest Road provides the most direct truck connection to the Port. He suggested that G&O talk with Mark Wilkes at the MPO who would know the right person to talk with at the Port about their activities. He said Georgia DOT is upgrading the Houlihan Bridge.

3. One of the major problems are accidents at the Dean Forest Road/I-16 interchange due to undesirable spacing of the entrance and exit ramps along Dean Forest Road. He said their had been some nasty accidents. It is current a diamond interchange, but may need to be modified to provide a directional ramp.

4. The Port has already engaged Georgia DOT for overpasses at the railroad south of SR 21 on Dean Forest Road at the CSX line. The Georgia DOT District Preconstruction Engineer in Jesup, Tony Collins (912-427-5715), is handling this.

5. Because of security associated with September 11th, there are large delays at the main Port gate at the intersection of Dean Forest Road and SR 25/US 17.

6. There is another Port facility called the East Port Terminal along President Street. There is a problem with getting trucks through downtown. They use Bay Street now, which carries about 25,000 vehicles per day, with about 12% trucks. HNTB is doing a regional transportation study and recommending a four-lane tunnel under Gwinnett Street.

7. Asked about maintenance problems, Mike said there are major problems on River Street at all of the ramps. They are made of cobblestones, which are a big maintenance problem. They are trying to restrict hours of

operation and restrict heavy trucks. Mike suggested G&O talk with Perry Banks, head of the City of Savannah's Street Department (912-651-6571).

Interview with Randy Weitman, Facilities Engineer, Port of Savannah

DATE:	January 25, 2002
PROJECT:	High Priority Corridor Six Study G&O Project No. 0089
SUBJECT:	Interview with Randy Weitman, Facilities Engineer, Georgia Port Authority – Port of Savannah – to Discuss Port Activities and Future Plans

ATTENDEES:	Randy Weitman	GPA	rweitman@gaports.com
	Toni Dunagan	DWA	tdunagan@daywilburn.com
	Jeff Carroll	G&O	jcarroll@g-and-o.com

DISCUSSION:

1. The Port of Savannah is one of three ports in Georgia that operate for a profit. The State of Georgia sells bonds for development at the port. The Port of Savannah has a good relationship with GDOT and with the Savannah – Chatham County Planning Commission.
2. The Ocean Terminal handles break bulk cargo and the bottom has fallen out of this market. Container shippers are marketing break bulk customers and selling space to them in containers that would have been returning to another port empty.
3. The southeast region of the US is the hottest area for containerized cargo. The Port of Savannah recently surpassed the 1 million TEU's in June and they will probably do about 1.1-1.2 TEU's this year alone. The port is projecting a 10-12 percent increase in containerized freight.
4. The Port recently opened the 150 acre ICTF along SR 307 and SR 25. Before this facility, it took about three days to get the containerized freight to Atlanta. With the new facility the containerized freight can reach Atlanta in one day and Chicago in three days. Norfolk Southern has access to this facility and CSX may gain access in the future.
5. Home Depot has a 1.4 million square foot distribution center located near the port facility. Other distribution centers serving the port are: Pier One, Dollar Tree, Wal-Mart, and K-Mart.
6. There will be new spec warehouse building adjacent and north of the existing port.
7. Approximately 3,100 trucks travel in and out of the Port of Savannah a day. The volume of trucks per day accessing the port continues to grow and is expected to grow because of the projected growth in containerized freight.
8. The I-95 interchange needs to be signalized because of the heavy traffic moving through this interchange.
9. The Jimmy Deloach Parkway will be extended to SR 25 and this will provide better connectivity between the port facilities, distribution centers and airport.

10. The rail/truck ratio is approximately 15 percent rail and 85 percent truck. Approximately 70 percent of the truck traffic accessing the port is local and the remaining 30 percent is long distance carriers. Local drivers pick up containers and deliver them to the distribution centers; from there another truck will take the container to its final destination.
11. The distribution centers are fueling the growth for the Port of Savannah right now. If Wal-Mart says they want the goods shipped to Savannah the supplier will deliver the goods there without question.
12. GPA is currently designing 2 grade separation in the port area and GDOT will be funding the construction. The first one will construct an overpass on SR 25/US 17 to travel over a new 48 foot wide roadway to be built by GPA. The overpass will eliminate interference of heavy intermodal traffic generated by the James D. Mason Intermodal Terminal Container Transfer Facility Construction is scheduled for FY 2002 this improvement. The second will construct an overpass on SR 307 to travel over the existing Norfolk Southern Foundation, to be built by GPA. The project will eliminate interference between rail and vehicle traffic. This is a high priority and PE and R/W is scheduled to be completed in 2002 and construction is scheduled for 2004.
13. None of the project from the Chatham County Intermodal Freight Study have been implemented to date. The Port is in need of some improvements identified in that study to facilitate traffic more efficiently in and out of the port.
14. The Port has two gates that trucks can enter and exit. Gate 3 exits the port onto Brampton Road and during certain times of the day Norfolk Southern blocks the access from Brampton Road to SR 21 when they perform track switching. When this entry/exit access is blocked, the trucks will turn around and use Gate 1 and this causes some traffic problems in the port facility along with congestion on SR 21 and Brampton Road/SR 21 Spur.
15. One of the major problems is that I-516 does not extend to I-95. The Intermodal Study identified this as a viable project and this would be very beneficial accessing the port.
16. The port has replaced asphalt with concrete in several high traffic areas within the port facility. But given the cost of concrete we could overlay asphalt twice and still not meet the initial cost of replacing it with concrete.
17. The Port will add approximately 85 acres to the port facility in 2008, they will not be renewing a lease and this will provide them more space. The Port owns land north of their current facility but there are environmental issues related to expanding to this area. There has been discussion on moving some port activities across the river to Hutchinson. The Governor gave $1 million to the port to examine if expanding to Hutchinson Island would be feasible. CSX has an abandoned rail line that accesses Hutchinson Island that could be rehabilitated. The Houlihan bridge needs to be upgraded if expansion occur north of the port or across the river on Hutchinson Island. The Port has grown as much as possible and they are looking at internal modifications for expansion.

Appendix B

Design and Construction of Concrete Intersections "Tech Notes"

"TECH NOTES"

"TECH NOTES" is an effort by the FOSSC Materials Laboratory to share design and construction technology gained from projects done throughout WSDOT. This issue is from the Pavements Branch discussing concrete intersections.

Design and Construction of Concrete Intersections

The Washington State Department of Transportation (WSDOT) began replacing selected flexible pavement intersections with Portland cement concrete pavement (PCCP) in 1994. These asphalt concrete pavement (ACP) intersections were severely rutted and distressed from loads, slow moving vehicles, and warm temperatures.

Distressed pavement on SR 395 in Kennewick, Washington.

Though WSDOT has considerable experience with cement concrete pavements, a unique feature was the replacement of existing ACP at intersections on urban arterials. Seventeen intersections have been reconstructed with PCCP as of September 2001.

Both PCCP and ACP have 40-year design lives, however, the PCCP requires very minimal, if any future rehabilitation. The construction user costs and disruption to traffic that are necessary with future ACP inlays during its design life are reduced when PCCP is used. The major disadvantage with PCCP intersections is the higher initial construction cost. However, a life cycle cost analysis of PCCP reconstruction versus ACP reconstruction and future inlays shows that PCCP intersection reconstruction competes with, and can be less expensive than,

Concrete intersection on SR 2 in Spokane, Washington.

rebuilding with ACP over a 40-year period.

Several municipalities in the State of Washington including the City of Kennewick, City of Seattle, City of Spokane, and Spokane County, have successful completed PCCP intersection projects. The PCCP intersection projects for the City of Kennewick, City of Spokane and Spokane County were selected primarily to eliminate chronic rutting problems. PCCP intersections within the City of Seattle were a result of its PCCP construction program on many arterials.

The main reasons for not considering PCCP reconstruction prior to 1994 was related to constructibility and concerns about accommodating high traffic flows through urban intersections. Rehabilitating urban intersections with ACP requires rotomilling and inlaying with ACP to remove wheel rutting. This work can typically be done at night, in a short period, and with a minor inconvenience to the public, but must be performed every eight to ten years or earlier. On the other hand, rehabilitating intersections with PCCP usually involves disruption of the intersection, and can include complete closure of the intersection or alternating lane closures.

Placement of formwork prior to a PCCP intersection pour.

The concern within WSDOT was that the inconvenience to the users was too great to construct urban intersections with PCCP. However, since 1994, WSDOT has shown that PCCP intersections are constructible and the early concerns have been overcome. WSDOT has built PCCP intersections with an average daily traffic approaching 37,000 on the major leg of the intersection.

A comparison of initial PCCP intersection costs ranged from $455,500 to $982,200 for PCCP and $349,800 to $728,600 for ACP. The range in the PCCP or ACP reconstruction costs resulted primarily from the size and

Placement of concrete using a Whiteman Screed at an urban intersection.

variability in unit bid prices for each intersection. Typically, intersection sizes ranged from 4,100 to 6,700 square yards. With the smaller intersections, the unit bid costs typically increased, which drives the costs for reconstruction up. On average, initial construction costs for full depth PCCP reconstruction at urban intersections were 25 to 30 percent more than full depth ACP reconstruction.

The cost per square yard for the initial PCCP construction ranged from $66 to $148 per square yard, whereas ACP intersection costs ranged from $51 to $109 per square yard. The PCCP reconstruction costs were less when the intersections were reconstructed as part of a larger asphalt resurfacing project.

The 40-year annualized costs for intersections show that full depth PCCP intersection reconstruction is typically less than full depth ACP reconstruction when future ACP inlays are accounted for. A study of six of the intersections reconstructed with concrete showed that five of the six cost from 6 to 14 percent less than ACP reconstruction (see Table 1 and Figure 1).

In comparison the 40-year annualized cost for reconstructed PCCP intersections compared to ACP inlays at four-, six- and eight-year cycles show that the ACP inlay will always be less than the PCCP reconstruction (see Table 2).

However, the state or local agency must decide whether ACP inlays meet the expectations of the public. The public view of an agency rehabilitating the same section of roadway at four-, six- or eight-year cycles does not reflect well on the agency.

Table 1. Annualized costs (40-years) for PCCP reconstruction versus ACP reconstruction with inlays at 8-year cycles.

SR	Intersection	PCCP Rebuild	ACP Rebuild with Inlays at 8-year Cycles
27	Sprague	33,000	34,800
90	Broadway	27,600	51,500
2	Francis	72,100	80,500
291	Maple/Ash	32,900	35,500
27	Broadway	43,200	38,500
395	19th	30,100	34,300

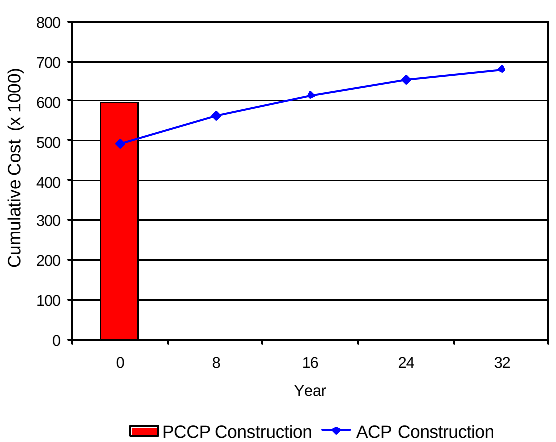

Figure 1. Cumulative costs (present worth) for initial PCCP construction and initial ACP construction with inlays at 8-year cycles over a 40-year period.

Table 2. Annualized costs (40-years) for PCCP reconstruction verses ACP inlays at 8-year cycles.

SR	Intersection	PCCP Rebuild	ACP Inlays at 8-year Cycles
27	Sprague	33,000	12,300
90	Broadway	27,600	14,900
2	Francis	72,100	24,500
291	Maple/Ash	32,900	15,200
27	Broadway	43,200	14,500
395	19th	30,100	14,400

Traffic control and construction staging is a primary issue associated with the construction of PCCP intersections. While some delay to the traveling public is unavoidable, the delay has proved to be tolerable even with limited or complete closures. An important design element is to obtain input from any party that will be affected by the intersection reconstruction. These parties include, but are not limited to, local governments, fire and police agencies, business owners, and private citizens. An important element to contract administration has been the wide publicity by WSDOT Public Information to local governments, businesses, and to the media, including newspapers and radio.

The Customer Focus Highway Construction Workshop, held in Seattle in January 1999, noted that the traveling public is a lot more tolerant during construction when people are kept informed. With widespread publicity, WSDOT has noticed decreased traffic volumes during intersection reconstructions. The reduction represents people who have found alternative routes or have adjusted their schedules to avoid the construction project.

Staging options for PCCP intersection construction include complete closures, partial closures, construction under traffic, complete closures during limited time periods, and any combination of the above.

WSDOT has used complete closures, partial closures with detours, construction under traffic and a combination of construction under traffic and complete closures.

The ideal construction situation is to completely close the roadway. Complete closures allow the contractor to remove and replace more roadway in a continuous and safe operation. Interaction with traffic is avoided and complicated work zone lane configurations are eliminated. Complete closures also restrict access to businesses that are adjacent to the intersection and are therefore unpopular. However, closing a major urban arterial is often not an option, particularly when detours are not available.

The South Central Region used complete closures on SR 395 in Kennewick, where the Clearwater Avenue, West Kennewick Avenue, and the Yelm Street intersections were reconstructed. One intersection per weekend was reconstructed during September and

Construction under traffic at an urban intersection.

October 2000. The contract specified closing each intersection by 7:00 p.m. Thursday evening and opening to traffic by 6:00 a.m. the next Monday morning. Local traffic was detoured to adjacent streets, while state highway traffic was detoured over nearby Interstate Highways.

Concrete intersections constructed in Kennewick, Washington.

Before the weekend closures, the approach and leave legs to the intersections were reconstructed under traffic. During the weekend closures, the contractor removed and replaced the roadway within the intersection square (radius return to radius return) and a portion of each approach or leave legs of the adjoining city streets. PCCP placement and curing proceeded well, with the roadway opened well ahead of the 6:00 a.m. Monday morning target. Following the closures, WSDOT received very favorable comments from both businesses and residents.

Full documentation of the Kennewick area accelerated reconstructions including a video and construction report will be available through the Innovative Pavement Research Foundation.

Design and construction considerations, PCCP intersection construction costs, life cycle costs, traffic management, and quality control issues are detailed in WSDOT's May 2001 publication WA-RD 503.1 "PCCP Intersections – Design and Construction in Washington State." This report can be obtained from the WSDOT Research Office or from the contact provided below.

For more information contact:

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Appendix C

Construction Work Program

P	PROJECT	COUNTY	DESCRIPTION	PROGDATE	RANGE
0001472	LUM-0001-00(472)	All	LUMP SUM MAINTENANCE FOR ANY AREA FY 2007	2007	LONG RANGE
311005-	NH-IM-16-1(131)	Bibb	I-16 IN MACON- BRIDGE AT MARTIN LUTHER KING DRIVE	2003	SHORT RANGE
311460-	IM-NH-75-1(192)CT 1	Bibb	RECONSTRUCT HARTLEY BRIDGE RD/CR 740 BRIDGE & APP OVER I-75	2003	SHORT RANGE
331870-	BRMLB-3268(1)	Bibb	CR 742/TUCKER ROAD @ ROCKY CREEK 1 MI W OF MACON CTY LMTS	2003	SHORT RANGE
333055-	STP-066-1(36)	Bibb	SR 87/MACON FM JOE TAMPLIN EXT TO & ALONG WEAVER RD TO W.ELK	2003	SHORT RANGE
351110-	STP-3201(9)	Bibb	LOG CABIN DR FM EISENHOWER PKWY TO MERCER UNIV DR/ SR 74	2003	SHORT RANGE
323020-	NH-00TS(61)	Bibb	ATMS MAINTENANCE IN MACON FOR 2003	2003	SHORT RANGE
350960-	STP-3207(4)	Bibb	SR 74 FM W OF I-475 W/TRN LNES TO E OF LOG CABIN DR/SR 74 SP	2003	SHORT RANGE
333152-	BRST-037-1(26)	Bibb	SR 87/US 23 @ BEAVERDAM CREEK JUST NORTH OF I-75	2004	SHORT RANGE
311950-	NH-IM-475-1(247)	Bibb	I-475/ZEBULON RD INTERCHANGE MODIFICATION {INCL LIGHTING}	2004	SHORT RANGE
323025-	NH-00TS(62)	Bibb	ATMS MAINTENANCE IN MACON FOR 2004	2004	SHORT RANGE
311465-	IM-NH-75-1(192)CT 2	Bibb	I-75/I-475 INTERCHANGE @ HARTLEY BRIDGE RD.	2005	SHORT RANGE
0000566	STP-0000-00(566)	Bibb	SARDIS CHURCH RD/CR 717 FROM I-75 TO SR 247/HAWKINSVILLE RD	2005	SHORT RANGE
323030-	NH-3230-00(300)	Bibb	ATMS: MAINTENANCE IN MACON FOR 2005	2005	SHORT RANGE
371800-	NH-3718-00(000)	Bibb	COMMUTER RAIL GRIFFIN TO MACON/BIBB - HOUSTON CO. - PHASE 4	2005	SHORT RANGE
322005-	BHF-037-1(19)	Bibb	SR 87/RIVERSIDE DR/MACON @ SABBATH CREEK	2006	LONG RANGE
323045-	BRN-034-3(38)	Bibb	SR 247/US 129 SBL @ NOR-SOU RAILROAD S OF MACON CTY LIMIT	2006	LONG RANGE
333150-	BRST-005-3(28)	Bibb	SR 19/US 23 NBL & SBL @ WALNUT CREEK EAST EDGE OF MACON	2006	LONG RANGE
351135-	BRMLB-3213(5)	Bibb	CR 723/FOREST HILL ROAD @ SABBATH CREEK NORTH OF SR 19	2006	LONG RANGE
0002225	STP-0002-00(225)	Bibb	SECOND ST/CR 302 @ NOR-SOU RAILROAD IN MACON	2006	LONG RANGE
310980-	NH-16-1(91)	Bibb	I-16 @ SR 540 INCL I-16 ML BR @ SAL RR| 1 STREAM & 1 RIVER	2006	LONG RANGE
311910-	NH-75-1(246)	Bibb	I-75 NEW INTERCHANGE AT SARDIS CHURCH RD	2006	LONG RANGE
363630-	FLF-540(17)	Bibb	SR 540/EISENHOWER PKWY EXT FM LOWER BOUNDARY ST E TO I-16	2006	LONG RANGE
362695-	FLF-540(16)	Bibb	SR 540/EISENHOWER PKWY FM I-16 N TO SR 19/US 80/EMERY HWY	2006	LONG RANGE
311000-	NH-IM-16-1(92)	Bibb	I-16/MACON FM SR 11 EAST TO SR 87 INCL BRIDGES & CD /EXC MLK	2006	LONG RANGE
351130-	STP-3213(3)	Bibb	CR 723/FOREST HILL RD FM WIMBISH RD TO NORTHSIDE DR/CR 79	2006	LONG RANGE
322000-	STP-037-1(18)	Bibb	SR 87/RIVERSIDE DR/MACON FM HALL RD TO NORTHSIDE DR	2006	LONG RANGE
311560-	IM-NH-75-1(214)	Bibb	I-75 @ HARDEMAN AVE- FORSYTH ST & GEORGIA AVE & HARDEMAN AVE	2006	LONG RANGE
371801-	NH-3718-00(010)	Bibb	COMMUTER RAIL GRIFFIN TO MACON/BIBB - HOUSTON CO. - PHASE 5	2006	LONG RANGE
351095-	BRMLB-3223(6)	Bibb	CR 727/JEFFERSONVILLE RD. @ WALNUT CREEK IN NE MACON	2007	LONG RANGE
0000835	STP-0000-00(835)	Bibb	JEFFERSONVILLE RD AT NORFOLK SOUTHERN RAILROAD	2007	LONG RANGE
350595-	PRP-8530-26(021)	Bibb	SOUTH DOWNTOWN CONN FM TELFAIR ST TO MLK JR BLVD IN MACON	2007	LONG RANGE
312090-	NH-IM-75-2(211)	Bibb	I-75 FM PIERCE AVE/SR 247/US 41 TO ARKWRIGHT ROAD	2007	LONG RANGE
342080-	STP-3223(2)	Bibb	JEFFERSON'LE FM WALNUT CK-RECREATION & MILLER'LD TO BRISTOL	2007	LONG RANGE
350520-	STP-3213(1)	Bibb	FOREST HILL RD IN MACON FROM FORSYTH ROAD TO WIMBISH ROAD	2007	LONG RANGE
351080-	STP-3223(5)	Bibb	JEFFERSONVILLE RD FM RECREATION RD TO FALL LINE FWY/US 80	2007	LONG RANGE
351090-	STP-3223(4)	Bibb	JEFFERSONVILLE RD FM EMERY HWY/SR 19 TO WALNUT CREEK BRIDGE	2007	LONG RANGE
351105-	BHMLB-3201(11)	Bibb	CR 88/LOG CABIN DRIVE @ ROCKY CREEK WEST OF SR 74	2008	LONG RANGE
311410-	NH-16-1(104)	Bibb	I-16/I-75 FM I-75 @ HARDEMAN AVE TO I-16 @ SPRING ST	2008	LONG RANGE
351100-	STP-3201(8)	Bibb	CR 88/LOG CABIN DR FM SR 74/MERCER UNIV DR TO HOLLINGSWORTH	2008	LONG RANGE
351120-	STP-3201(10)	Bibb	BLOOMFIELD RD/LOG CABIN DR FM ROCKY CK RD TO SR 22/EISENHOWE	2008	LONG RANGE
351140-	STP-3213(4)	Bibb	NW PKWY-NEW LOC FM LOG CABIN TO NAPIER@PARK ST THEN TO SR 19	2008	LONG RANGE
371430-	STP-00MS(128)	Bibb	WESTERN LP FM FULTON MILL RD ALONG CR 742 TO I-75	2008	LONG RANGE
245336-	BRST-0941(9)	Bleckley	SR 126 @ GUM SWAMP CREEK 5.8 MI E OF COCHRAN	2006	LONG RANGE
222360-	MLP-87(43)	Bleckley	SR 87 FM NORTH OF SR 257 NW TO THE COCHRAN BYPASS	2007	LONG RANGE

P	PROJECT	COUNTY	DESCRIPTION	PROGDATE	RANGE
511190-	IM-16-1(110)	Bryan	I-16 WIDEN 10 BRIDGES @ MP 138.3| 145.9| 146.6| 146.8| 147.2	2006	LONG RANGE
532370-	STP-0630(10)	Bryan	SR 144 EB FM TIMBER TRAIL/ML 11.5 TO CR 154/ML 16	2008	LONG RANGE
542380-	BRST-0577(23)	Bulloch	SR 46 @ LOTTS CREEK 1.8 MI E OF REGISTER	2003	SHORT RANGE
0001076	STP-0001-00(076)	Bulloch	SR 26/US 80 AT AKINS POND RD/CR 9 NORTH OF STATESBORO	2004	SHORT RANGE
0003091	BR-0003-00(091)	Bulloch	CR 153/CYPRESS LAKE RD @ WATERINGHOLE BRANCH SW/STATESBORO	2005	SHORT RANGE
0003092	BR-0003-00(092)	Bulloch	CR 577/FAS 733 @ LOWER BLACK CREEK 6 MI S OF BROOKLET	2006	LONG RANGE
522640-	STP-068-1(36)LP	Bulloch	E. STATESBORO BYP/SR 1018 FROM SR 73/US 25 TO SR 73/US 301	2006	LONG RANGE
521800-	NH-068-2(20)	Bulloch	SR 73/US 301 FM PACKING HOUSE RD TO NORTH OF CR 445 & BRIDGE	2008	LONG RANGE
542401-	BRST-0729(13)	Candler	SR 129 @ CANOOCHEE RIVER & OVERFLOW 4 MI S OF METTER	2003	SHORT RANGE
542400-	BRST-0577(24)	Candler	SR 46 @ FIFTEEN MILE CREEK 2.8 MI E OF METTER	2004	SHORT RANGE
0002734	BR-0002-00(734)	Candler	CR 196 @ WOLFE CREEK 6 MI SOUTH OF METTER	2005	SHORT RANGE
0002841	BR-0002-00(841)	Candler	CR 223/ PORTAL HIGHWAY @ LITTLE STOCKING HEAD CREEK	2006	LONG RANGE
0002842	BR-0002-00(842)	Candler	CR 223/ PORTAL HIGHWAY @ BIG BRANCH 8 MI NORTH OF METTER	2006	LONG RANGE
0002843	BR-0002-00(843)	Candler	CR 223/ PORTAL HIGHWAY @ LOTTS CREEK 9 MI NORTH OF METTER	2006	LONG RANGE
0000691	NHS-0000-00(691)	Candler	I-16 CONSTRUCTION OF A NEW REST AREA IN MEDIAN AT MP 97	2006	LONG RANGE
0000345	HPP-0000-00(345)	Chatham	SR 307 CONSTRUCT OVERPASS OVER NEW PORTS AUTHORITY RAIL LINE	2003	SHORT RANGE
521867-	BHF-009-2(81)	Chatham	SR 25/US 17/OCEAN HWY @ OGEECHEE RIVER OVERFLOW	2003	SHORT RANGE
533205-	BRST-219-1(1)	Chatham	CR 302/MONTGOMERY CROSS RD @ CASEY CANAL 1 MI E OF SR 204	2003	SHORT RANGE
532570-	STP-111-1(22)	Chatham	ABERCORN ST @ TIBET AVE	2003	SHORT RANGE
521865-	STP-009-2(79)	Chatham	SR 25/US 17 FM OGEECHEE RVR OFLW TO S/SR 204(& NEW BR)	2003	SHORT RANGE
0001075	NHS-0001-00(075)	Chatham	HARRY S.TRUMAN PKY/PH 3 CT 3 - INTERCHANGE LIGHTING	2003	SHORT RANGE
T000698	HAR-T000-00(698)	Chatham	HAR 27-4/Legal Fees - Condemnation by SC	2003	SHORT RANGE
522790-	STP-218-1(1)	Chatham	JIMMY DELOACH PARKWAY EXTENSION FM I-16 TO US 80	2005	SHORT RANGE
522490-	HPP-STP-064-1(41)	Chatham	SR 26/US80 FM W OF BULL RIVER TO E OF LAZARETTO CRK	2005	SHORT RANGE
522490-	HPP-STP-064-1(41)	Chatham	SR 26/US80 FM W OF BULL RIVER TO E OF LAZARETTO CRK	2005	SHORT RANGE
562165-	MLP-307(8)	Chatham	SR 307/DEAN FOREST ROAD FM R.B. MILLER RD TO SR 21	2005	SHORT RANGE
522170-	STP-005-5(28)	Chatham	SR 17&26/US 80 FM SR 17 TO CHERRY ST IN BLOOMINGDALE/CHATHAM	2005	SHORT RANGE
523230-	NH-00TS(57)	Chatham	ATMS: SAVANNAH/CHATHAM COUNTY/GDOT REGIONAL TCC	2005	SHORT RANGE
511180-	IM-16-1(109)	Chatham	I-16 AT MP 165.1- 164.0- 163.2- 162.3- AND I-516 INTERCHANGE	2006	LONG RANGE
533160-	BRST-064-1(49)	Chatham	SR 25/OCEAN HIGHWAY @ NS RAILROAD 5 MI N OF SAVANNAH	2006	LONG RANGE
0000690	IM-0000-00(690)	Chatham	RECONSTRUCTION OF THE I-95 SOUTH BOUND WELCOME CENTER	2006	LONG RANGE
521855-	STP-064-1(40)SPUR	Chatham	SR 26 FM 4-LN E/LYNES PKWY TO VICTORY DR/CS 188	2006	LONG RANGE
550580-	STP-4004(5)	Chatham	WHITE/COFFEE BLUFF RDS FM N OF LITTLE OGEECHEE RVR TO WILLOW	2006	LONG RANGE
523215-	NH-00TS(54)	Chatham	ATMS: I-95 COMM/SURV FM SR 204 TO US 80/SR 26	2006	LONG RANGE
533200-	BRST-111-1(32)	Chatham	SR 204/ABERCORN EXTENSION @ HARMON CANAL W OF WHITE BLUFF	2007	LONG RANGE
571060-	STP-00MS(44)	Chatham	SKIDAWAY RD FM FERGUSON AVE TO S OF VICTORY DR IN SAVANNAH	2007	LONG RANGE
523235-	NH-00TS(58)	Chatham	ATMS: SAVANNAH SLO SCAN/CMS/RADAR	2007	LONG RANGE
522920-	NH-009-2(93)	Chatham	SR 404 SPUR/US 17 OVER BACK RIVER 1 MILE N OF SAVANNAH	2008	LONG RANGE
550550-	STP-00MS(4)	Chatham	SR 204 SPUR/DIAMOND CSWY FM FERGUSON AVE TO MCWHORTER DR	2008	LONG RANGE
550560-	STP-00MS(5)	Chatham	WHITFIELD AVE/SR 204SP FM OLD WHITFIELD TO FERGUSON AVE/SAV	2008	LONG RANGE
0001368	BR-0001-00(368)	Chattahoochee	CR 58 @ NORFOLK SOUTHERN RAILROAD 4.6 MI E OF CUSSETA	2005	SHORT RANGE
363130-	FLF-540(11)	Crawford	SR 96 FM E OF FLINT RIV TO FT VALLEY BP/SR 49C & BRIDG/PEACH	2003	SHORT RANGE
410260-	HPP-NH-75-1(156)CT 1	Crisp	I-75 FM SR 300 TO DOOLY COUNTY LINE	2003	SHORT RANGE
432080-	STP-30-2(43)	Crisp	SR 30/US 280/16TH AVE AT 15TH ST IN CORDELE	2003	SHORT RANGE
450550-	STP-1300(4)	Crisp	24th AVENUE/SR 987 GRADE SEPARATION AT NORFOLK SOUTHERN RR	2004	SHORT RANGE

P	PROJECT	COUNTY	DESCRIPTION	PROGDATE	RANGE
0003385	NHS-0003-00(385)	Crisp	I-75 STREAM MITIGATION IN TIFT; TURNER & CRISP COUNTIES	2004	SHORT RANGE
0002229	BR-0002-00(229)	Crisp	CR 71/AMBOY ROAD @ LIME CREEK 2 MI E OF ARABI	2005	SHORT RANGE
422470-	STP-30-2(29)	Crisp	SR 30/US 280 FM E OF FLINT RVR TO SR 300 CONN W OF CORDELE	2006	LONG RANGE
221960-	GIP-341(31)	Dodge	SR 27 FM CHAUNCEY E CL TO HELENA WEST CL/TELFAIR CO-22196X	2003	SHORT RANGE
262061-	EDS-441(18)	Dodge	SR 31/US 441 FM N/CR 132 THRU DODGE TO SR 46/LAURENS	2004	SHORT RANGE
262061-	EDS-441(18)	Dodge	SR 31/US 441 FM N/CR 132 THRU DODGE TO SR 46/LAURENS	2004	SHORT RANGE
0002224	BR-0002-00(224)	Dodge	CR 52/FAIR HAVEN CH ROAD @ CROOKED CREEK 2.4 MI N OF RHINE	2006	LONG RANGE
0002227	BR-0002-00(227)	Dodge	CR 239 (OLD CR 346)/ JAYBIRD SPRINGS RD @ GUM SWAMP CREEK	2006	LONG RANGE
245355-	BRST-0573(17)	Dodge	SR 87/EASTMAN-RHINE HWY @ SUGAR CREEK 1.8 MI S OF EASTMAN	2006	LONG RANGE
0002226	BR-0002-00(226)	Dodge	CR 275/NEW BETHEL CH ROAD @ JOINER CREEK 9 MI NE OF CHAUNCEY	2006	LONG RANGE
222410-	MLP-87(45)	Dodge	SR 87/US 23 FM CR 332/EASTMAN TO SR 257/FRAZIER (EXCEPTION)	2007	LONG RANGE
231930-	STP-030-3(23)	Dodge	SR 30/US 280 FM WEST TO EAST CITY LIMITS OF MILAN	2007	LONG RANGE
221975-	STP-066-1(29)SPUR	Dodge	NW EASTMAN BYP/SR 841 FM US 341/SR 27 NE TO US 23/SR 87	2008	LONG RANGE
333190-	BRST-081-1(21)	Dooly	SR 27 @ PENNAHATCHEE CREEK WEST OF VIENNA	2004	SHORT RANGE
0002228	BR-0002-00(228)	Dooly	CR 104/PLEASANT VALLEY RD @ LITTLE PENNAHATCHEE CRK	2005	SHORT RANGE
311665-	IM-NH-75-1(227)	Dooly	I-75 WIDEN BRIDGE & RAMPS @ SR 27	2006	LONG RANGE
571450-	BRZLB-103(2)	Effingham	CR 183/LOG LANDING ROAD @ EBENEZER CREEK 4 MI N OF RINCON	2003	SHORT RANGE
522170-	STP-005-5(28)	Effingham	SR 17&26/US 80 FM SR 17 TO CHERRY ST IN BLOOMINGDALE/CHATHAM	2005	SHORT RANGE
533145-	BRST-005-5(47)	Effingham	SR 26/US 80 @ OGEECHEE RIVER OVERFLOW 9 MI S OF GUYTON	2006	LONG RANGE
511190-	IM-16-1(110)	Effingham	I-16 WIDEN 10 BRIDGES @ MP 138.3| 145.9| 146.6| 146.8| 147.2	2006	LONG RANGE
0001824	STP-0001-00(824)	Effingham	RINCON TRUCK BYPASS FM SR 21 NEAR CHATHAM TO SR 275/SR 21	2006	LONG RANGE
231970-	BHF-062-1(22)	Emanuel	SR 57 OVER SARDIS CREEK 9.7 MILES NW OF SWAINSBORO	2003	SHORT RANGE
222490-	EDS-545(44)	Emanuel	SR 4/US 1 FM N. OF I-16 NORTH TO SR 297 @ SWAINSBORO BYPASS	2003	SHORT RANGE
522130-	EDS-545(14)	Emanuel	SR 4/US 1 FM LYONS CL TO SOUTH CL/OAK PARK IN EMANUEL CO	2004	SHORT RANGE
522130-	EDS-545(14)	Emanuel	SR 4/US 1 FM LYONS CL TO SOUTH CL/OAK PARK IN EMANUEL CO	2004	SHORT RANGE
221900-	EDS-545(17)	Emanuel	SR 4/US 1 FM SOUTH TO NORTH CTY LMTS IN OAK PARK/NEW LOC	2005	SHORT RANGE
221910-	EDS-545(18)	Emanuel	SR 4/US 1 FROM NCL OAK PARK TO I-16	2005	SHORT RANGE
231960-	BHF-038-2(40)	Emanuel	SR 56 (3) BRIDGES OVER OGEECHEE RVR & OVFL NE OF SUMMERTOWN	2006	LONG RANGE
232325-	BRST-005-4(25)	Emanuel	SR 26/US 80 @ E FORK YAM GRANDY CK 2.2 MI SW OF SWAINSBORO	2007	LONG RANGE
0000768	NHS-0000-00(768)	Emanuel	I-16 SAFETY UPGRADES @ SR 15; SR 56 | SR 297 & SR 4/ EMANUEL	2007	LONG RANGE
222510-	EDS-545(50)	Emanuel	SR 4/US 1 FM N SWAINSBORO BP TO CR 104| RELOC @ DELW'D	2007	LONG RANGE
222500-	EDS-545(48)	Emanuel	SR 4/US 1 FM CR 104 TO US 1/SR 4 BUS NEAR WADLEY & JEFFERSON	2007	LONG RANGE
222630-	NH-038-1(40)	Emanuel	SR 4/US 1 FM PROPOSED BYPASS N TO INJUNCTION RD IN SWAINSBOR	2007	LONG RANGE
522105-	MLP-30(81)	Evans	SR 30/CLAXTON FM WEST CTY LMTS TO EAST CTY LMTS	2008	LONG RANGE
533140-	BRST-007-4(58)	Glynn	SR 520/JEKYLL ISLAND ROAD @ CEDAR CREEK 1.5 MI SE OF SR 25	2003	SHORT RANGE
562120-	MLP-520(32)	Glynn	SR 520 OVER LATHAM RIVER AT TWO LOCATIONS ON JEKYLL CAUSEWAY	2003	SHORT RANGE
523190-	NH-007-4(56)	Glynn	SR 520/SR 25 FLYOVER BRIDGE AT COLONEL'S ISLAND @ RR(PORTS)	2003	SHORT RANGE
511092-	NH-IM-95-1(154)	Glynn	I-95 @S BRUNSWICK-TURTLE RV,GIBSON CK,SR 303/HILLERY SLOUGH	2003	SHORT RANGE
0001223	BR-0001-00(223)	Glynn	CR 78 @ BURNETT CREEK 3 MI NW OF BRUNSWICK	2005	SHORT RANGE
511100-	NH-IM-95-1(117)	Glynn	I-95 FM US 341 TO ALTAMAHA RIVER @ MCINTOSH CO;EXC SR 99 INT	2006	LONG RANGE
511090-	NH-IM-95-1(118)	Glynn	I-95 FM US 17/SR 520 SOUTH OF BRUNSWICK TO RR/CR 586	2006	LONG RANGE
0001585	NHS-0001-00(585)	Glynn	I-95 INTERCHANGE RECONSTRUCTION AT SR 99/GRANTS FERRY ROAD	2007	LONG RANGE
550495-	STP-5504-00(950)	Glynn	MLK BLVD FM 4TH AVE TO GLOUCESTOR ST	2008	LONG RANGE
343030-	STP-744(6)	Harris	SR 219 AT HOPEWELL CHURCH ROAD/CR 388 IN WHITESVILLE	2003	SHORT RANGE
343040-	STP-158-1(14)	Harris	SR 219 AT MCCRARY RD/CR 124 AND LICK SKILLET ROAD/CR 389	2003	SHORT RANGE

P	PROJECT	COUNTY	DESCRIPTION	PROGDATE	RANGE
343372-	BRST-0746(6)	Harris	SR 116 @ BETHLEHEM CRK AND BETHEL CRK 6 MILES NE OF HAMILTON	2004	SHORT RANGE
343371-	BRST-0746(7)	Harris	SR 116 @ PALMETTO CREEK 1.4 MI E OF SR 1	2004	SHORT RANGE
343370-	BRST-0746(8)	Harris	SR 116 @ LITTLE PALMETTO CREEK HAMILTON - NE SECTION	2004	SHORT RANGE
333155-	BRST-011-1(55)	Harris	SR 1/US 27 @ MOUNTAIN CREEK 1.6 MI N OF SR 190	2004	SHORT RANGE
0003084	BR-0003-00(084)	Harris	CR 140/WHITESVILLE ROAD @ STANDING BOY CREEK TRIB. NORTH	2005	SHORT RANGE
0003085	BR-F003-00(085)	Harris	CR 140/WHITESVILLE ROAD @ STANDING BOY CREEK TRIB. SOUTH	2005	SHORT RANGE
0003086	BR-0003-00(086)	Harris	CR 140/WHITESVILLE ROAD @ STANDING BOY CREEK SO OF SR 315	2005	SHORT RANGE
0003090	BR-0003-00(090)	Harris	CR 219/BROWN CREEK RD @ BROWN CREEK 5 MI NW OF WAVERLY HALL	2005	SHORT RANGE
370850-	BRZLB-145(8)	Harris	CR 20/MONUMENT RD @ HOUSE CREEK .2 MI NW OF WHITESVILLE	2005	SHORT RANGE
0003088	BR-0003-00(088)	Harris	CR 393/HILL SCHOOL ROAD @ BARNES CREEK 2.4 MI SW HAMILTON	2006	LONG RANGE
331660-	BR-3316-00(600)	Harris	CR 387 @ PALMETTO CREEK 4 MI. SOUTH OF PINE MOUNTAIN	2006	LONG RANGE
333156-	BRST-158-1(17)	Harris	SR 103 @ FLAT SHOALS CREEK 11.2 MI W OF SR 116	2007	LONG RANGE
322820-	STP-011-1(49)	Harris	SR 1/US 27 PASSING LANE N OF HAMILTON - SB MP 15.10-13.61	2008	LONG RANGE
371730-	HPP-3717-00(300)	Houston	DAVIS DR; GREEN ST & N HOUSTON RD IN WARNER ROBINS	2003	SHORT RANGE
371730-	HPP-3717-00(300)	Houston	DAVIS DR; GREEN ST & N HOUSTON RD IN WARNER ROBINS	2003	SHORT RANGE
322965-	BRN-034-3(36)	Houston	SR 247/US 129 NBL @ ECHECONNEE CREEK HOUSTON-BIBB CO LINE	2004	SHORT RANGE
331830-	STP-0668(7)	Houston	HOUSTON LAKE RD FM SR 127 @ CR 279 TO SR 96/& INTER @ CR 188	2004	SHORT RANGE
0001360	BR-0001-00(360)	Houston	SR 247 CONN. @ BAY GALL CREEK IN WARNER ROBINS	2005	SHORT RANGE
371800-	NH-3718-00(000)	Houston	COMMUTER RAIL GRIFFIN TO MACON/BIBB - HOUSTON CO. - PHASE 4	2005	SHORT RANGE
331865-	BHS-0675(9)	Houston	SR 127 AT MOSSY CREEK	2006	LONG RANGE
331860-	STP-0675(8)	Houston	SR 127 FM NORTH PERRY PARKWAY TO BEAR BRANCH ROAD	2006	LONG RANGE
371740-	HPP-3717-00(400)	Houston	CORDER RD FM WATSON BLVD TO RUSSELL PKWY IN WARNER ROBINS	2006	LONG RANGE
371740-	HPP-3717-00(400)	Houston	CORDER RD FM WATSON BLVD TO RUSSELL PKWY IN WARNER ROBINS	2006	LONG RANGE
371801-	NH-3718-00(010)	Houston	COMMUTER RAIL GRIFFIN TO MACON/BIBB - HOUSTON CO. - PHASE 5	2006	LONG RANGE
342930-	STP-5105(1)	Houston	ELBERTA RD FM HOUSTON RD TO CARL VINSON PKWY - WARNER ROBINS	2008	LONG RANGE
232285-	BRST-062-1(26)	Johnson	SR 57 @ LITTLE OHOOPEE RIVER .5 MI E OF KITE	2004	SHORT RANGE
232000-	STP-045-1(25)	Johnson	SR 31/US 319 NB MP 31.0-32.4; SB 38.8-3.4 /JOHNSON	2007	LONG RANGE
232000-	STP-045-1(25)	Johnson	SR 31/US 319 NB MP 31.0-32.4; SB 38.8-3.4 /JOHNSON	2007	LONG RANGE
232270-	BRST-005-4(24)	Laurens	SR 26/US 80 @ PUGHES CREEK 2.8 MI SE OF BREWTON	2003	SHORT RANGE
210950-	IM-00MS(329)	Laurens	I-16 SAFETY UPGRADES @ SR 199 IN LAURENS & SR 29 IN TREUTLEN	2003	SHORT RANGE
262040-	EDS-441(5)	Laurens	DUBLIN BYP FM US 441 @.5 MI N OF FIRE TOWER RD NW TO US 441	2003	SHORT RANGE
0000542	MLP-0000-00(542)	Laurens	SR 257 FROM I-16 TO INDUSTRIAL BLVD	2003	SHORT RANGE
231430-	EDS-441(39)	Laurens	SR 29/US 441 FROM CR 471/LAURENS TO SR 112/WILKINSON	2003	SHORT RANGE
262061-	EDS-441(18)	Laurens	SR 31/US 441 FM N/CR 132 THRU DODGE TO SR 46/LAURENS	2004	SHORT RANGE
262061-	EDS-441(18)	Laurens	SR 31/US 441 FM N/CR 132 THRU DODGE TO SR 46/LAURENS	2004	SHORT RANGE
245397-	BRST-1570(9)	Laurens	SR 19 @ LITTLE FLAT CREEK 12.5 MI SE OF DUBLIN	2005	SHORT RANGE
245396-	BRST-1570(10)	Laurens	SR 19 @ BIG FLAT CREEK 13 MI SE OF DUBLIN	2005	SHORT RANGE
245395-	BRST-1570(11)	Laurens	SR 19 @ WHITEWATER CREEK 13.2 MI SE OF DUBLIN	2005	SHORT RANGE
262064-	EDS-441(19)	Laurens	SR 31/US 441 FROM SR 46 NORTH TO CR 272	2005	SHORT RANGE
262027-	EDS-441(20)	Laurens	SR 31/US 441 FM CR 272 NORTH TO JUST SOUTH OF I-16	2005	SHORT RANGE
245398-	BRST-2763(5)	Laurens	SR 199 @ PUGHES CREEK 6.9 MI SE OF EAST DUBLIN	2006	LONG RANGE
210940-	IM-00MS(328)	Laurens	I-16 SAFETY UPGRADES @ SR 338;SR 257 & SR 19	2006	LONG RANGE
0000833	STP-0000-00(833)	Laurens	NEW OCONEE RVR X'ING FM COUNTRY CLUB TO BLACKSHEAR TO FERRY	2007	LONG RANGE
232000-	STP-045-1(25)	Laurens	SR 31/US 319 NB MP 31.0-32.4; SB 38.8-3.4 /JOHNSON	2007	LONG RANGE
432090-	BRST-031-1(41)	Lee	SR 32 @ MUCKALEE CREEK APP 2.5 MI E OF LEESBURG	2003	SHORT RANGE

P	PROJECT	COUNTY	DESCRIPTION	PROGDATE	RANGE
462395-	EDS-19(44)	Lee	SR 3/US 19 FM NORTH OF CR 151 NW TO SUMTER CL @ SMITHVILLE	2003	SHORT RANGE
432091-	BRST-031-1(39)	Lee	SR 32 AT FLINT RIVER OVERFLOW 0.45 MILE FM WORTH CO LINE	2003	SHORT RANGE
432092-	BRST-031-1(42)	Lee	SR 32 @ FLINT RIVER AND OVERFLOW AT THE LEE/WORTH COUNTY LN.	2004	SHORT RANGE
431730-	STP-083-1(53)	Lee	SR 91/PHILEMA RD FM CR 5/GRAVES SPGS RD NE TO SR 32	2005	SHORT RANGE
521190-	BRF-026-3(35)	Liberty	SR 196/@ BAKER SWAMP SLOUGH	2003	SHORT RANGE
0000455	NHS-0000-00(455)	Liberty	SR 38/US 84 AT SR 196	2003	SHORT RANGE
541940-	STP-2610(1)	Liberty	FRANK COCHRAN DR EXT FM SR 196 @ CS 823 TO US 84	2003	SHORT RANGE
520781-	STP-026-3(51)	Liberty	SR 196 FM US84/SR 38 TO SR 25/US 17 SW OF I-95	2004	SHORT RANGE
550600-	STP-2610(2)	Liberty	FRANK COCHRAN DRIVE FM SR 119 TO HERO ROAD	2004	SHORT RANGE
343350-	BRST-2025(5)	Macon	SR 329 @ HOGCRAWL CREEK NEAR DOOLY CO LINE	2004	SHORT RANGE
343351-	BRST-1802(5)	Macon	SR 240 @ BUCK CREEK APP 5 MI S OF IDEAL GA.	2004	SHORT RANGE
322285-	BRF-153-1(24)	Macon	SR 90 @ CSX RR SOUTH OF IDEAL NEAR CR 57	2005	SHORT RANGE
343340-	BRST-1802(4)	Macon	SR 240 @ BUCK CREEK APP 5 MI S OF IDEAL	2006	LONG RANGE
333070-	STP-00MS(384)	Macon	SR 128 @ SR 90 & SR 127; SR 26 @ SR 49 & SR 224 & SIGNING	2006	LONG RANGE
333070-	STP-00MS(384)	Macon	SR 128 @ SR 90 & SR 127; SR 26 @ SR 49 & SR 224 & SIGNING	2006	LONG RANGE
333070-	STP-00MS(384)	Macon	SR 128 @ SR 90 & SR 127; SR 26 @ SR 49 & SR 224 & SIGNING	2006	LONG RANGE
333070-	STP-00MS(384)	Macon	SR 128 @ SR 90 & SR 127; SR 26 @ SR 49 & SR 224 & SIGNING	2006	LONG RANGE
343010-	BRS-0639(4)	Marion	SR 355 OVER JUNIPER CREEK AT TALBOT COUNTY LINE	2003	SHORT RANGE
343355-	BRST-0649(1)	Marion	SR 137 @ OOCHEE CREEK 2.5 MI E OF JCT SR 41	2004	SHORT RANGE
343356-	BRST-0649(3)	Marion	SR 137 @ BUCK & GIN CREEKS .7 MI W OF JCT SR 240	2004	SHORT RANGE
511110-	NH-IM-95-1(120)	Mcintosh	I-95 FM ALTAMAHA RIVER @ GLYNN CL TO 1-MILE NORTH OF SR 251	2003	SHORT RANGE
511112-	NH-IM-95-1(150)	Mcintosh	I-95 OVER CHAMPNEYS RVR- BUTLER RVR- DARIEN CK- CATHEAD CK	2004	SHORT RANGE
511120-	NH-IM-95-1(121)	Mcintosh	I-95 FM 1-MILE NORTH OF SR 251 TO SR 57 -- PHASE 1	2004	SHORT RANGE
542421-	BRST-0612(11)	Mcintosh	SR 57 @ JACKIE CAMP SWAMP 3 MI W OF JCT I-95	2004	SHORT RANGE
542420-	BRST-0612(10)	Mcintosh	SR 57 @ YOUNGS SWAMP .12 MI W OF JCT I-95	2005	SHORT RANGE
542070-	STP-2387(4)	Mcintosh	SR 251 FM MCINTOSH IND PK(MP 11) TO US 17/SR 25(INCL BRS)	2007	LONG RANGE
532330-	BRSLB-1901(1)	Montgomery	CR 169/THOMPSON POND ROAD @ TIGER CREEK 4 MI SE OF TARRYTOWN	2003	SHORT RANGE
570760-	BRZLB-209(1)	Montgomery	CR 12 @ TIGER CREEK 3 MI SE OF TARRYTOWN	2003	SHORT RANGE
571455-	BRZLB-209(2)	Montgomery	CR 1 @ TIGER CREEK 1 MI E OF TARRYTOWN	2003	SHORT RANGE
522520-	STP-070-1(11)	Montgomery	SR 15 BTWN HIGGSTON & TARRYTOWN/ NB MP 5.0-6.4;SB 8.7-9.7	2003	SHORT RANGE
550610-	STP-5005(4)	Montgomery	SR 292/VIDALIA FM MORN'SIDE - LOWERY WITH RIGHT ON WILSON	2003	SHORT RANGE
542410-	BRST-0599(9)	Montgomery	SR 56 @ MILLIGAN CREEK IN CITY LIMITS OF UVALDA	2004	SHORT RANGE
0001366	BR-0001-00(366)	Montgomery	SR 30/US 280 @ OCONEE RIVER AT WHEELER/MONTGOMERY CO LINE	2007	LONG RANGE
0000343	STP-0000-00(343)	Muscogee	RIVER RD/SR 219 AT 54TH STREET/CS 1425 IN COLUMBUS	2003	SHORT RANGE
351020-	STP-8050(1)	Muscogee	CS 1425/54TH STREET FROM CHUMAR DR TO VETERANS PARKWAY	2003	SHORT RANGE
323000-	NH-00TS(47)	Muscogee	ATMS: COLUMBUS SLO SCAN/CMS/RADAR	2003	SHORT RANGE
323005-	NH-00TS(48)	Muscogee	ATMS: COLUMBUS/MUSCOGEE COUNTY/GDOT REGIONAL TCC	2003	SHORT RANGE
350780-	STP-8043(4)	Muscogee	FOREST RD FM MACON{+MACON IMPROV} TO WOODRUFF FA/FLOYD RD	2004	SHORT RANGE
350780-	STP-8043(4)	Muscogee	FOREST RD FM MACON{+MACON IMPROV} TO WOODRUFF FA/FLOYD RD	2004	SHORT RANGE
350790-	STP-8038(7)	Muscogee	ST MARYS RD/CS 2108/COLUMBUS FM BUENA VISTA TO ROBIN RD	2004	SHORT RANGE
351190-	STP-8042(9)	Muscogee	BUENA VISTA ROAD FM I-185 TO DOGWOOD DRIVE	2004	SHORT RANGE
350796-	STP-8042(5)	Muscogee	BUENA VISTA RD/COLUMBUS FM BROWN AVE SE TO ILLGES RD	2004	SHORT RANGE
0001362	BR-0001-00(362)	Muscogee	GENTIAN BLVD/CS 1781 @ LINDSEY CREEK JUST EAST OF I-185	2005	SHORT RANGE
350785-	STP-8043(5)	Muscogee	FOREST RD/SR 983 FM WOODRUFF FARM/FLOYD RD TO SCHATULGA	2005	SHORT RANGE
350785-	STP-8043(5)	Muscogee	FOREST RD/SR 983 FM WOODRUFF FARM/FLOYD RD TO SCHATULGA	2005	SHORT RANGE

P	PROJECT	COUNTY	DESCRIPTION	PROGDATE	RANGE
351010-	STP-8060(2)	Muscogee	CS 1618/WHITTLESEY ROAD FROM WHITESVILLE RD TO VETERANS PKWY	2006	LONG RANGE
350855-	BHMLB-8042(7)	Muscogee	CS 2228/SCHATULGA ROAD @ BULL CREEK EAST OF COLUMBUS	2007	LONG RANGE
332780-	STP-215-1(2)	Muscogee	ST MARY'S RD FM FARR ROAD TO NORTHSTAR DRIVE	2007	LONG RANGE
350850-	STP-8042(6)	Muscogee	SCHATULGA RD/EASTERN CONN. RD FM BUENA VISTA RD TO MACON RD	2007	LONG RANGE
351200-	STP-8058(3)	Muscogee	MILLER RD/CS 1660 FM WARM SPRINGS RD TO MACON RD/SR 22 SPUR	2007	LONG RANGE
311630-	IM-185-1(326)	Muscogee	I-185 INTERCHANGE AT SR 1/SR 520	2008	LONG RANGE
311445-	NH-IM-185-1(317)	Muscogee	I-185/COLUMBUS FM SR 520 TO ST MARYS ROAD	2008	LONG RANGE
350890-	STP-8000(8)	Muscogee	CUSSETA/OLD CUSSETA RD/CR 62 FM FT BENNING DR TO STAUNTON DR	2008	LONG RANGE
363820-	FLF-540(30)	Peach	SR 49C/FT VALLEY BYP FM BEVERLY RD NE TO SR 49 - ADD 2 LANES	2003	SHORT RANGE
363130-	FLF-540(11)	Peach	SR 96 FM E OF FLINT RIV TO FT VALLEY BP/SR 49C & BRIDG/PEACH	2003	SHORT RANGE
363765-	PRP-178-1(225)CT 2	Peach	RICHARD RUSSELL PKWY FM LAKE VIEW/CR 91 TO HOUSERS MILL/CR83	2006	LONG RANGE
343250-	STP-1508(3)	Peach	CR 182/WHITE ROAD -REALIGN TO PROVIDE INTERSECTION W/SR 42	2007	LONG RANGE
322180-	GIP-341(33)	Pulaski	SR 27/US 341 FM SR 230/HAWKINSVILLE E TO DODGE CO LINE	2003	SHORT RANGE
333080-	BRST-138-1(12)	Pulaski	SR 257 @ TEN MILE CREEK 3.5 MI NW OF FINLEYSON	2004	SHORT RANGE
343000-	BRS-0679(7)	Pulaski	SR 230 @ BIG CREEK 5.6 MILES WEST OF HAWKINSVILLE	2005	SHORT RANGE
322420-	HPPN-EDS-19(55)	Schley	SR 3/US 19 FM ANGELICA CK/SUMTER TO SR 271/SCHLEY	2003	SHORT RANGE
343345-	BRST-1169(6)	Schley	SR 153 @ LITTLE MUCKALEE CREEK 3.0 MI E OF JCT SR 45	2004	SHORT RANGE
322730-	EDS-19(64)	Schley	SR 3/US 19 FROM SR 271 TO SR 240	2004	SHORT RANGE
322720-	EDS-19(63)	Schley	SR 3/US 19 FM SR 240/SCHLEY TO CR 201/COOPER RD/TAYLOR	2004	SHORT RANGE
343415-	BRST-2692(12)	Stewart	SR 39 @ TALIPAHOGA CREEK APP 2 MI S OF OMAHA	2003	SHORT RANGE
422245-	EDS-27(173)	Stewart	SR 1/US 27 FR CR 116/RANDOLPH TO LUMPKIN BYPASS/ STEWART	2003	SHORT RANGE
422245-	EDS-27(173)	Stewart	SR 1/US 27 FR CR 116/RANDOLPH TO LUMPKIN BYPASS/ STEWART	2003	SHORT RANGE
333160-	BRST-030-1(25)	Stewart	SR 27 @ BLADEN CREEK 11 MI SW OF LUMPKIN	2004	SHORT RANGE
322420-	HPPN-EDS-19(55)	Sumter	SR 3/US 19 FM ANGELICA CK/SUMTER TO SR 271/SCHLEY	2003	SHORT RANGE
322310-	BRN-006-3(11)	Sumter	SR 3/US 19 @ BEAR BRANCH S/SR 27	2004	SHORT RANGE
333195-	BRST-081-1(20)	Sumter	SR 27 @ LIME CREEK 6.7 MI E OF JCT SR 30	2004	SHORT RANGE
343410-	BRST-2088(5)	Sumter	SR 195 @ LIME CREEK 5 MI N OF JCT SR 30	2004	SHORT RANGE
333196-	BRST-081-1(19)	Sumter	SR 30 @ MUCKALEE CREEK 0.5 MI WEST OF AMERICUS	2004	SHORT RANGE
322193-	BHN-006-2(47)	Sumter	SR 3/US 19 @ CSX RR SOUTH OF US 280	2004	SHORT RANGE
322190-	EDS-19(51)	Sumter	SR 3/US 19 FM CR 42 TO 0.3 MI N/US 280 (INCL NEW RR BR)	2004	SHORT RANGE
322195-	EDS-19(50)	Sumter	SR 3/US 19 FM LEE CO LINE TO CR 42/SUMTER (INCL BRIDGES)	2004	SHORT RANGE
333085-	BRST-029-1(46)	Sumter	SR 49 @ SWEETWATER CREEK 1 MI S OF ANDERSONVILLE	2005	SHORT RANGE
343230-	STP-0646(1)	Sumter	SR 308/BONDS TRAIL RD REALIGNMENT FROM CR 32 TO CR 140	2006	LONG RANGE
322760-	STP-030-2(31)	Sumter	SR 30/US 280 FROM FELDER ST TO SE OF LAMAR RD/CR 311	2006	LONG RANGE
322770-	STP-030-2(28)	Sumter	SR 30/US 280 FM LAMAR RD/CR 311 TO SR 195 IN DESOTO	2006	LONG RANGE
322775-	STP-030-2(30)	Sumter	SR 30/US 280 FM SR 195 IN DESOTO TO E OF FLINT RVR	2006	LONG RANGE
343405-	BRST-2060(1)	Talbot	SR 240 @ BLACK CREEK 2.6 MI S OF GENEVA	2003	SHORT RANGE
343110-	BHSLB-0656(2)	Talbot	CR 172/POBIDDY ROAD@ FLINT RIVER N OF JCT SR 22/UPSON/TALBOT	2004	SHORT RANGE
332900-	STP-157-1(8)	Talbot	SR 36 PASSING LANES - 1 SITE IN UPSON & 3 IN TALBOT	2007	LONG RANGE
332900-	STP-157-1(8)	Talbot	SR 36 PASSING LANES - 1 SITE IN UPSON & 3 IN TALBOT	2007	LONG RANGE
332900-	STP-157-1(8)	Talbot	SR 36 PASSING LANES - 1 SITE IN UPSON & 3 IN TALBOT	2007	LONG RANGE
333210-	BRST-157-1(9)	Talbot	SR 36 @ FLINT RIVER 9.6 MI E OF WOODLAND	2008	LONG RANGE
0000929	STP-0000-00(929)	Talbot	SR 36 PASSING LANES-WB MP 20.4-22.75 & EB MP .05-1.79 UPSON	2008	LONG RANGE
571180-	BRZLB-267(7)	Tattnall	MIDWAY RD/CR 79 @ CEDAR CREEK 2 MI NORTH OF COLLINS	2003	SHORT RANGE
533180-	BRST-147-1(3)	Tattnall	SR 144 @ BEARD'S CREEK 2 MI E OF GLENNVILLE	2004	SHORT RANGE

P	PROJECT	COUNTY	DESCRIPTION	PROGDATE	RANGE
533120-	STP-BRF-146-1(2)	Tattnall	SR 144 AT WATERMELON CREEK 3 MI W OF GLENNVILLE	2004	SHORT RANGE
0001364	BR-0001-00(364)	Tattnall	SR 56/NAIL BRIDGE @ OHOOPEE RIVER 2 MILES W OF REIDSVILLE	2005	SHORT RANGE
532640-	STP-30-4(21)	Tattnall	SR 30/US 280 FM SR 56 TO ENTRANCE OF GORDONIA STATE PARK	2007	LONG RANGE
343365-	BRST-0649(4)	Taylor	SR 137 @ CEDAR CREEK 13.3 MI SW OF BUTLER	2003	SHORT RANGE
343367-	BRST-0649(2)	Taylor	SR 137 @ WHITEWATER CREEK 5 MI SW OF BUTLER	2003	SHORT RANGE
333205-	BRST-154-1(12)	Taylor	SR 128 @ FLINT RIVER 8 MI N OF REYNOLDS	2003	SHORT RANGE
343366-	BRST-0649(5)	Taylor	SR 137 @ WHITEWATER CREEK TRIB. 7 MI SW OF BUTLER	2003	SHORT RANGE
322710-	EDS-19(65)	Taylor	SR 3/US 19 FM CR 201/COOPER RD TO BUTLER BYPASS & NEW LOC	2004	SHORT RANGE
322720-	EDS-19(63)	Taylor	SR 3/US 19 FM SR 240/SCHLEY TO CR 201/COOPER RD/TAYLOR	2004	SHORT RANGE
221960-	GIP-341(31)	Telfair	SR 27 FM CHAUNCEY E CL TO HELENA WEST CL/TELFAIR CO-22196X	2003	SHORT RANGE
521570-	BRN-023-2(7)	Telfair	SR 31/US 441 @ ALLIGATOR| BIG HORSE OFLOW| BIG HORSE CKS	2003	SHORT RANGE
542395-	BRST-0573(16)	Telfair	SR 117 @ BIG HORSE CREEK 9.2 MI E OF JACKSONVILLE	2004	SHORT RANGE
531100-	EDS-441(12)	Telfair	S MCRAE BYP FM SR 31/US 441 NE TO SR 27/US 341 @ N.MCRAE BYP	2004	SHORT RANGE
561470-	EDS-441(13)	Telfair	N MCRAE BYP FM US 341/S BYP TO US 441/WHEELER/INCL SIGNALS	2004	SHORT RANGE
0002425	BR-0002-00(425)	Telfair	SR 31/US 319 /441 @ TURNPIKE CREEK 5.3 MI S OF MCRAE	2007	LONG RANGE
522530-	EDS-441(36)	Telfair	SR 31/US 441 FR CR 240 TO S. MCRAE BYPASS	2007	LONG RANGE
522540-	EDS-441(37)	Telfair	SR 31/US 441 FM SR 107/COFFEE TO CR 240 IN TELFAIR	2007	LONG RANGE
522540-	EDS-441(37)	Telfair	SR 31/US 441 FM SR 107/COFFEE TO CR 240 IN TELFAIR	2007	LONG RANGE
0000454	BR-0000-00(454)	Terrell	CR 11/BELLFLOWER ROAD @ HEROD CREEK 3.5 MI SW OF DAWSON	2003	SHORT RANGE
0000452	BR-0000-00(452)	Terrell	CR 164/SASSER-HEROD ROAD @ BRANTLEY CREEK WEST OF SASSER	2005	SHORT RANGE
0000453	BR-0000-00(453)	Terrell	CR 164/SASSER-HEROD ROAD @ CHICKASAWHATCHEE CREEK	2005	SHORT RANGE
431410-	STP-029-1(32)	Terrell	SR 49 FM SR 45 FOR APPROX. 3 MILES TO CORRECT HORIZ ALIGN.	2008	LONG RANGE
522320-	STP-030-3(18)	Toombs	SR 30 FM W OF SUNSET DR TO BROADFOOT ST & 1-WAY PAIR/VIDALIA	2003	SHORT RANGE
550610-	STP-5005(4)	Toombs	SR 292/VIDALIA FM MORN'SIDE - LOWERY WITH RIGHT ON WILSON	2003	SHORT RANGE
542416-	BRST-2762(8)	Toombs	SR 147 @ COBB CREEK 17 MI S OF LYONS	2004	SHORT RANGE
542415-	BRST-0599(8)	Toombs	SR 56 @ ROCKY CREEK 13 MI SE OF LYONS	2004	SHORT RANGE
0001365	BR-0001-00(365)	Toombs	SR 4/US 1 @ SWIFT CREEK JUST N OF LYONS CTY LIMIT	2004	SHORT RANGE
522130-	EDS-545(14)	Toombs	SR 4/US 1 FM LYONS CL TO SOUTH CL/OAK PARK IN EMANUEL CO	2004	SHORT RANGE
522130-	EDS-545(14)	Toombs	SR 4/US 1 FM LYONS CL TO SOUTH CL/OAK PARK IN EMANUEL CO	2004	SHORT RANGE
0001216	BR-0001-00(216)	Toombs	SR 4/US 1@ ALTAMAHA RIVER; OVERFLOW AND WILLIAMS CREEK	2005	SHORT RANGE
522225-	BHN-038-1(37)	Toombs	SR 4/US 1 @ COBB CREEK	2006	LONG RANGE
522220-	EDS-545(23)	Toombs	SR 4/US 1 FM NORTH OF WILLIAMS CK TO SR 56	2006	LONG RANGE
522180-	EDS-545(24)	Toombs	SR 4/US 1 FM SR 56 TO SR 29 /INCL. CLVT @ BRANCH OF OPEN CRK	2006	LONG RANGE
522185-	BHN-038-1(36)	Toombs	SR 4/US 1 @ ROCKY CRK & LITTLE ROCKY CRKS S/LYONS	2007	LONG RANGE
522200-	EDS-545(26)	Toombs	SR 4 LYONS FM S CTY LMTS TO N CTY LMTS/INCL 1-WY PAIR&CLVT	2007	LONG RANGE
522190-	EDS-545(25)	Toombs	SR 4/US 1 FM SR 29 TO S CL/LYONS [INCL CLVT @ ROCKY CUT CRK]	2007	LONG RANGE
210950-	IM-00MS(329)	Treutlen	I-16 SAFETY UPGRADES @ SR 199 IN LAURENS & SR 29 IN TREUTLEN	2003	SHORT RANGE
231700-	STP-070-1(12)	Treutlen	SR 29 NB MP 4.95-6.05| SB MP 7.0-8.1	2003	SHORT RANGE
531250-	BRS-577(13)	Treutlen	SR 46 AT OCONEE RIVER AT WHEELER/TREUTLEN COUNTY LINE	2004	SHORT RANGE
245360-	BRST-0577(25)	Treutlen	SR 46 @ OCONEE RIVER OVERFLOW 7.6 MI SW OF SOPERTON	2005	SHORT RANGE
0000768	NHS-0000-00(768)	Treutlen	I-16 SAFETY UPGRADES @ SR 15; SR 56 | SR 297 & SR 4/ EMANUEL	2007	LONG RANGE
342980-	STP-1833(12)	Twiggs	SR 18 PASS LNS FM JEFFERSONVILLE/TWIGGS TO GORDON/WILKINSON	2004	SHORT RANGE
342980-	STP-1833(12)	Twiggs	SR 18 PASS LNS FM JEFFERSONVILLE/TWIGGS TO GORDON/WILKINSON	2004	SHORT RANGE
322922-	BRN-006-4(32)	Upson	SR 3/US 19 @ POTATO CREEK IN THOMASTON	2004	SHORT RANGE
343110-	BHSLB-0656(2)	Upson	CR 172/POBIDDY ROAD@ FLINT RIVER N OF JCT SR 22/UPSON/TALBOT	2004	SHORT RANGE

P	PROJECT	COUNTY	DESCRIPTION	PROGDATE	RANGE
322920-	NH-006-4(31)	Upson	SR 3/US 19 AT CR 73/EAST AND WEST COUNTY ROAD IN THOMASTON	2006	LONG RANGE
322550-	STP-156-1(11)	Upson	SR 74 FM HOLSTUN DR TO TRICE ROAD IN THOMASTON	2007	LONG RANGE
0000929	STP-0000-00(929)	Upson	SR 36 PASSING LANES-WB MP 20.4-22.75 & EB MP .05-1.79 UPSON	2008	LONG RANGE
0000929	STP-0000-00(929)	Upson	SR 36 PASSING LANES-WB MP 20.4-22.75 & EB MP .05-1.79 UPSON	2008	LONG RANGE
332800-	STP-00MS(283)	Upson	SR 18/74/109 AT FIVE LOCATIONS/UPSON & MERIWETHER	2008	LONG RANGE
333165-	BRST-030-1(26)	Webster	SR 27/US 280 @ LANAHASSEE CREEK 2.2 MI E OF PRESTON	2004	SHORT RANGE
343360-	BRST-0532(13)	Webster	SR 41 @ BEAR CREEK 1.8 MI N OF WESTON	2004	SHORT RANGE
343361-	BRST-0532(12)	Webster	SR 41 @ KINCHAFOONEE CREEK IN SW PRESTON	2004	SHORT RANGE
343362-	BRST-1169(8)	Webster	SR 153 @ LANAHASSEE CREEK 3.5 MI NE OF PRESTON	2004	SHORT RANGE
343364-	BRST-1518(11)	Webster	SR 45 @ KINCHAFOONEE CREEK AND OVERFLOW W. OF SUMTER CO LINE	2005	SHORT RANGE
542100-	BRS-1570(5)	Wheeler	SR 19 @ OCHWALKEE CREEK 1 MI N OF GLENWOOD	2003	SHORT RANGE
561470-	EDS-441(13)	Wheeler	N MCRAE BYP FM US 341/S BYP TO US 441/WHEELER/INCL SIGNALS	2004	SHORT RANGE
531250-	BRS-577(13)	Wheeler	SR 46 AT OCONEE RIVER AT WHEELER/TREUTLEN COUNTY LINE	2004	SHORT RANGE
0001220	BR-0001-00(220)	Wheeler	SR 31/US 319/US 441 @ CSX RAILROAD (635193G) NEAR MCRAE	2004	SHORT RANGE
262061-	EDS-441(18)	Wheeler	SR 31/US 441 FM N/CR 132 THRU DODGE TO SR 46/LAURENS	2004	SHORT RANGE
262061-	EDS-441(18)	Wheeler	SR 31/US 441 FM N/CR 132 THRU DODGE TO SR 46/LAURENS	2004	SHORT RANGE
533150-	BRST-030-3(27)	Wheeler	SR 30/US 280 @ OCHWALKEE CREEK 1 MI E OF GLENWOOD	2006	LONG RANGE
0001366	BR-0001-00(366)	Wheeler	SR 30/US 280 @ OCONEE RIVER AT WHEELER/MONTGOMERY CO LINE	2007	LONG RANGE
432070-	STP-BRF-030-2(41)	Wilcox	SR 30/US 280 @ ALAPAHA RIVER TRIB. 0.8 MI E OF SEVILLE	2003	SHORT RANGE
432075-	STP-BRF-030-2(42)	Wilcox	SR 30/US 280 @ ALAPAHA RIVER TRIB. 1.3 MI E OF SEVILLE	2003	SHORT RANGE
231430-	EDS-441(39)	Wilkinson	SR 29/US 441 FROM CR 471/LAURENS TO SR 112/WILKINSON	2003	SHORT RANGE
221870-	HPPN-FLF-540(19)	Wilkinson	FALL LINE FWY/NORTH GORDON BYPASS FM SR 57 TO SR 243 @ LAKE	2003	SHORT RANGE
342980-	STP-1833(12)	Wilkinson	SR 18 PASS LNS FM JEFFERSONVILLE/TWIGGS TO GORDON/WILKINSON	2004	SHORT RANGE
342980-	STP-1833(12)	Wilkinson	SR 18 PASS LNS FM JEFFERSONVILLE/TWIGGS TO GORDON/WILKINSON	2004	SHORT RANGE
262470-	FLF-540(22)	Wilkinson	FALL LINE FWY ON NEW LOC FM SR 243 @ MORNINGSIDE TO US 441	2004	SHORT RANGE
0000346	EDS-0000-00(346)	Wilkinson	FALL LINE FWY ON NEW LOC FM US 441/WILKINSON CO TO SR 24	2004	SHORT RANGE
222220-	BHF-062-1(21)	Wilkinson	SR 57 OVER THE OCONEE RIVER AT WASHINGTON COUNTY LINE	2005	SHORT RANGE

Appendix D

Pavement and Roadway Deficiencies - Freeways

Pavement and Roadway Deficiencies - Freeways

Area	Roadway/ Location	SubSection	No. of Lanes Each Direction	Paved Inside Shoulders (Adeq. Shoulder Width - min 4ft-2 lanes, min 10ft-3 or more lanes)	Paved Outside Shoulders (Adeq. Shoulder Width? - min 10 ft)	Type of Pavement for Inside and Outside Shoulders	Inter. Ramps Needing White-topping
Columbus	I-185 from SR 219 in Harris County to US 280 in Muscogee County	Full Section	3	No	No	Bit. Concrete (High)	at SR22(HPC6), at US80/SR85, at SR22SP(Macon Rd), at US280, at US27Atl
Macon	I-75 from SR 96 to I-16	Small Sections south of I-16 and at the intersection of US129	3	No	No	Inside Shoulder - Bit. Concrete and Outside Shoulder - PPC	at I-75
	I-475from SR 74 to I-75	Full Section	2	Yes	Yes	Inside Shoulder- Bit. Concrete and Outside Shoulder - PPC	None
	I-16 from I-75 to SR 96	Small section south of I-75 and small section at the Bibb/Twiggs Co line	3	Yes	Yes	Inside Shoulder- Bit. Concrete and Outside Shoulder - PPC	None
Perry	I-75 from SR 96 to SR 127	Full Section	3	Yes	Yes	Bit. Concrete (High)	at US341
I-16	I-16 from SR 96 to Chatham County Line	small section at the Bryan/Effingham Co line	3	No	No	Concrete or Bit. Surf. Treatment (low) or PPC and Outside Shoulder - PPC	None
I-16	I -16 from SR 96 to Chatham County Line	Full Section	2	Yes	Yes	Inside Shoulder Bit. Concrete and Outside Shoulder - PPC	441/SR21 near Dublin, at US1 in Emanuel Co., at SR 23 near Metter, US 301/US 25 and SR 67 near

N/A - Not Applicable or Data Not Available

Pavement and Roadway Deficiencies - Freeways

Area	Roadway/ Location	SubSection	No. of Lanes Each Direction	Paved Inside Shoulders (Adeq. Shoulder Width - min 4ft-2 lanes, min 10ft-3 or more lanes)	Paved Outside Shoulders (Adeq. Shoulder Width? - min 10 ft)	Type of Pavement for Inside and Outside Shoulders	Inter. Ramps Needing White-topping
Savannah	I-16/SR 404 Sp from I-95 to SR 25 Alt (Bay Street)	Small section between I-516 and SR204	3	Yes	Yes	Inside Shoulder- Bit. Concrete and Outside Shoulder - PPC	at 1-16, at I-95
	I-16/SR 404 Sp from I-95 to SR 25 Alt (Bay Street)	Full Section	2	Yes	No	Inside Shoulder- Bit. Concrete and Outside Shoulder - PPC	at SR25 Alt
	I-516 from SR 25 to intersection with Abercorn Street	just east of Springfield Canal and east of Abercom St	3	No	No	Inside Shoulder- Bit. Concrete and Outside Shoulder - PPC	at SR25
	I-516 from SR 25 to intersection with Abercorn Street	Full Section	2	Yes	Yes	Inside Shoulder- Bit. Concrete and Outside Shoulder - PPC	DeReene at Abercorn
	I-16 from Chatham Co line to I-516 in Savannah	Full Section	2	Yes	Yes	Inside Shoulder- Bit. Concrete and Outside Shoulder - PPC	at I-96, at SR 307, at I-516, at SR 25
	I-95 from SR 25 to SR 38	from SR 25 to I-16 and from Chatham/Liberty County line to SR 38	2	Yes	No	Inside Shoulder- Bit. Concrete and Outside Shoulder - PPC	at SR 21, at I-16, at US80
	I-95 from SR 25 to SR 38	From I-16 to Chatham/Liberty County line	3	Yes	Yes	Inside Shoulder- Bit. Concrete and Outside Shoulder - PPC	at I-16

N/A - Not Applicable or Data Not Available

Appendix E

Pavement and Roadway Deficiencies – Four Lane Divided GRIP Roads

Pavement and Roadway Deficiencies - Four Lane Divided GRIP Roads

GRIP Corridor	From	To	Potential Bottleneck Intersections	Key Intersections Needing White topping	Railroad Grade Crossings: Need Grade Seperation?	Railroad Grade Crossings: Need Precast Concrete Panels?	Shoulder Need Full Depth Pavement?
Fall Line Freeway	US80/SR22 from Alabama State Line near Columbus, GA	SR 96, to Butler Bypass	None	None	N/A	N/A	Not Recommended, Open to Traffic
Fall Line Freeway	SR 96, to Butler Bypass	SR128 in Taylor County	SR96 at US19	SR96 at US19 in Taylor County	Yes, at SR128 and SR96 (RR Crossing on SR128)	Yes	Not Recommended, Open to Traffic
Fall Line Freeway	SR128 in Taylor County	SR49C Bypass in Fort Valley, Peach County	Downtown Fort Valley - US341 at SR49 at SR96	SR96 at US341/SR7	2 RR crossings, 1) near Crawford/Peach County line on SR96, 2) on SR49C on Bypass, just west of US341/SR49C intersection (west of Fort Valley)	Both Yes	Not Recommended, project is ready to let
US 441	SR 338 north of Dublin in Laurens County	Downtown Dublin in Laurens Co	SR19 at US441	SR19 at US441	N/A	N/A	Yes
US 441	Downtown Dublin in Laurens Co	I-16	None	None	N/A	N/A	Yes
US 441	I-16	SR 117, south of I-16	None	None	N/A	N/A	Yes
US 1/ SR 17	Swainsboro in Emanuel County	I-16	None	None	N/A	N/A	Yes

Pavement and Roadway Deficiencies - Four Lane Divided GRIP Roads

GRIP Corridor	From	To	Potential Bottleneck Intersections	Key Intersections Needing White topping	Railroad Grade Crossings: Need Grade Seperation?	Railroad Grade Crossings: Need Precast Concrete Panels?	Shoulder Need Full Depth Pavement?
US 1/ SR 17	I-16	Lyons in Toombs County	None	None	downtown Swainsboro in Emanual Co	Yes	Yes
Savannah River Parkway	Jenkins/Bulloch Co line	I-16	SR67 Bypass at US25 (south-west section)	SR67 Bypass at US25 (south-west and north-west section)	N/A	N/A	Not Recommended, Open to Traffic
Savannah River Parkway	North of Springfield in Effingham County	I-95 in Chathem County	SR21 at SR119 in Effingham Co	None	N/A	N/A	Not Recommended, Open to Traffic
US84	I-95 in Liberty County	Hinesville in Liberty County	None	None	N/A	N/A	N/A

N/A - Not Applicable or Data Not Available

Appendix F

Programmed Bridges on HPC 6 Connecting Roads
Non-Programmed Bridge Deficiencies on HPC 6 Connecting Roads
Programmed Bridges on HPC 6 Mainline
Non-Programmed Bridge Deficiencies on HPC 6 Mainline

Programmed Bridges on HPC 6 Connecting Roads

Critical Deficiencies are Shaded

County	Bridge Serial Number	Route Number	Intersecting With	Location	Suff Rating	Structure Material*	H Load (less than 20)	HS Load (less than 20)	Inside Shoulder Width (feet)	Outside Shoulder Width (feet)	Through Lane Pavement Width (feet)	Vertical Clearance Feet	Vertical Clearance Inches	Vertical Clearance Opposite Direction Feet	Vertical Clearance Opposite Direction Inches
Bulloch	031-0024-0	SR00067	WOODCOCK BRANCH	10.2 MI S OF STATESBORO	28.3	4	18	25	2	2	24	N/A	N/A	N/A	N/A
Bulloch	031-0025-0	SR00067	ZETTEROWER BRANCH	9.1 MI S OF STATESBORO	7.0	4	18	25	2	2	24	N/A	N/A	N/A	N/A
Bulloch	031-0029-0	SR00067	LITTLE LOTTS CREEK	IN CITY LIMIT STATESBORO	90.5	1	N/A	N/A	3	3	30	N/A	N/A	N/A	N/A
Candler	043-0014-0	SR00129	CANOOCHEE RIVER	4 MI S OF METTER	44.5	4	15	25	2	2	22	N/A	N/A	N/A	N/A
Candler	043-0015-0	SR00129	CANOOCHEE RIVER O/F	4 MI S OF METTER	44.5	4	15	25	2	2	22	N/A	N/A	N/A	N/A
Chattahoochee	053-0002-0	SR00001	HICHITEE CREEK	2.4 MI S OF CUSSETA	16.2	4	18	25	6	6	24	N/A	N/A	N/A	N/A
Harris	145-0004-0	SR00001	MULBERRY CREEK	3 MILES S. HAMILTON	34.5	4	20	25	2	2	24	N/A	N/A	N/A	N/A
Harris	145-0005-0	SR00001	MOUNTAIN CREEK	2.1 MILES SOUTH PINE MOUNTAIN	21.4	3	15	25	2	2	25	N/A	N/A	N/A	N/A
Houston	153-0037-0	SR00247	ECHECONNEE CREEK	NORTH - WARNER ROBINS	34.6	3	20	25	8	8	24	N/A	N/A	N/A	N/A
Houston	153-0039-0	SR00247	BAY GALL CREEK	WARNER ROBINS - CENTER	35.5	1	N/A	N/A	2	2	60	N/A	N/A	N/A	N/A
Laurens	175-0002-0	SR00019	WHITEWATER CREEK	13.2 MI SE OF RENTZ	47.8	3	15	25	6	6	25	N/A	N/A	N/A	N/A
Laurens	175-0003-0	SR00019	FLAT CREEK	10 MI E OF RENTZ	48.2	3	15	25	6	6	25	N/A	N/A	N/A	N/A
Laurens	175-0004-0	SR00019	FLAT CREEK TRIB.	7.5 MI S OF DUBLIN	48.2	3	15	25	6	6	25	N/A	N/A	N/A	N/A
Laurens	175-0020-0	SR00026	PUGHES CREEK	2.8 MI SE OF BREWTON	39.5	1	20	25	2	2	24	N/A	N/A	N/A	N/A
Liberty	179-0030-0	SR00196	BAKER SWAMP	4 MI SE OF FLEMINGTON	46.5	1	20	25	3	3	22	N/A	N/A	N/A	N/A
Muscogee	215-0026-0	SR00085	LINDSEY CREEK	NORTH CENTRAL COLUMBUS	53.0	1	N/A	N/A	5	11	36	N/A	N/A	N/A	N/A
Stewart	259-0008-0	SR00027	BLADEN CREEK	11 MI SW OF LUMPKIN	47.5	4	15	25	6	6	24	N/A	N/A	N/A	N/A
Sumter	261-0010-0	SR00027	LIME CREEK	6 MILES EAST OF AMERICUS	37.4	4	15	25	2	2	23	N/A	N/A	N/A	N/A
Webster	307-0005-0	SR00027	LANAHASSEE CREEK	2.2 MI E OF PRESTON	7.0	1	15	25	3	3	28	N/A	N/A	N/A	N/A

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Bleckley	023-0001-0	SR00026	n	GUM SWAMP CREEK	6.2 MI NE OF COCHRAN	85.3	**4**	20	25	2	2	22	N / A	N / A	N / A	N / A
Bryan	029-0013-0	SR00030	n	I-16 (SR 404)	1.5 MI SW OF JCT SR 26	81.0	**4**	20	25	3	5	22	16	09	16	08
Bryan	029-0014-0	SR00030	n	I-16 (SR 404)	1.5 MI SW OF JCT SR 26	81.0	**4**	20	25	5	2	22	16	11	16	10
Bulloch	031-0002-0	SR00024	n	FLOYD BRANCH	5 MI E OF STATESBORO	82.7	**3**	N / A	N / A	2	2	21	N / A	N / A	N / A	N / A
Bulloch	031-0003-0	SR00024	n	SPRING CREEK	8 MI E OF STATESBORO	88.0	**3**	N / A	N / A	2	2	19	N / A	N / A	N / A	N / A
Bulloch	031-0005-0	SR00024	n	OGEECHEE RIVER	15 MI E OF STATESBORO	63.6	**4**	20	23	2	2	20	N / A	N / A	N / A	N / A
Bulloch	031-0022-0	SR00067	n	I-16 (SR 404)	9 MI SW OF BROOKLET	98.2	**4**	20	25	12	10	23	16	10	17	01
Bulloch	031-0036-0	SR00073	n	I-16 (SR 404)	3.8 MI SE OF REGISTER	97.5	**4**	20	25	4	11	23	16	11	17	05
Bulloch	031-0037-0	SR00073	n	I-16 (SR 404)	3.8 MI SE OF REGISTER	97.5	**4**	20	25	4	11	23	17	07	18	01
Bulloch	031-0047-0	SR00119	n	I-16 (SR 404)	13.3 MI SE OF BROOKLET	100.0	**4**	20	25	10	10	24	16	09	16	11
Bulloch	031-0050-0	SR00119	n	OGEECHEE RIVER	13.7 MI SE OF BROOKLET	76.8	**4**	20	25	2	2	24	N / A	N / A	N / A	N / A
Bulloch	031-0106-0	SR00024	n	MILL CREEK	4.2 MI E OF STATESBORO	98.3	**3**	20	25	1	1	22	N / A	N / A	N / A	N / A
Candler	043-0004-0	SR00023	n	I-16 (SR 404)	1.6 MI S OF METTER	88.2	**4**	20	25	8	8	24	17	00	17	01
Candler	043-0016-0	SR00129	n	I-16 (SR 404)	1.6 MI S OF METTER	99.3	**4**	20	25	2	2	22	16	11	17	01
Chatham	051-0047-0	SR00026	n	CSX RAILROAD (641173J)	W SECTION OF SAVANNAH	76.6	**3**	20	25	10	10	36	N / A	N / A	N / A	N / A
Chatham	051-0049-0	SR00026	n	RAILROAD REMOVED	IN W SECTION OF SAVANNAH	75.5	**3**	20	25	10	10	24	N / A	N / A	N / A	N / A
Chatham	051-0054-0	SR00025	n	SAVANNAH RIVER	1 MI NE OF PORT WENTWORT	62.7	**4**	20	25	8	8	24	15	01	15	01
Chatham	051-0060-0	SR00026	n	CSX RAILROAD (641183P)	IN GARDEN CITY	90.4	**3**	20	25	10	10	60	N / A	N / A	N / A	N / A
Chatham	051-0066-0	SR00026	n	LAZERATTO CREEK	10 MI SE OF SAVANNAH	52.0	**4**	20	25	8	8	26	N / A	N / A	N / A	N / A

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													Feet	Inches	Feet	Inches
Chatham	051-0069-0	SR00030	n	CSX RAILROAD	1.5 MI W INT I-95 & SR 21	98.1	**3**	20	25	8	8	24	N / A	N / A	N / A	N / A
Chatham	051-0079-0	SR00307	n	I-16 (SR 404)	5 MI W OF SAVANNAH	94.1	**4**	20	25	3	3	24	16	07	16	04
Chatham	051-0105-0	SR00405	n	SR 204	9 MI SW OF SAVANNAH	81.0	**3**	20	25	10	12	36	16	03	17	06
Chatham	051-0109-0	SR00405	n	I-16 (SR 404)	7 MI W OF SAVANNAH	83.0	**4**	20	25	10	12	36	17	09	17	03
Chatham	051-0111-0	SR00405	n	CSX RAILROAD	10 MI NE OF SAVANNAH	94.6	**4**	20	25	10	12	36	N / A	N / A	N / A	N / A
Chatham	051-0112-0	SR00405	n	CSX RAILROAD	10 MI NE OF SAVANNAH	94.6	**4**	20	25	10	12	36	N / A	N / A	N / A	N / A
Chatham	051-0113-0	SR00405	n	SR 26 (US 80)	10.5 MI NW OF SAVANNAH	98.0	**4**	20	25	10	12	36	16	04	17	05
Chatham	051-0114-0	SR00405	n	SR 26 (US 80)	10.5 MI NW OF SAVANNAH	98.0	**4**	20	25	10	12	36	17	04	17	02
Chatham	051-0119-0	SR00405	n	AUGUSTINE CREEK	1.6 MI S OF JCT SR 21	95.2	**3**	20	25	10	10	36	N / A	N / A	N / A	N / A
Chatham	051-0120-0	SR00405	n	AUGUSTINE CREEK	1.6 MI S OF JCT SR 21	95.2	**3**	20	25	10	10	36	N / A	N / A	N / A	N / A
Chatham	051-0121-0	SR00405	n	CSX RAILROAD	1.4 MI S OF JCT SR 21	95.2	**3**	20	25	10	10	36	N / A	N / A	N / A	N / A
Chatham	051-0122-0	SR00405	n	CSX RAILROAD	1.4 MI S OF JCT SR 21	95.2	**3**	20	25	10	10	36	N / A	N / A	N / A	N / A
Chatham	051-0123-0	SR00405	n	CSX RAILROAD	1.3 MI S OF JCT SR 21	95.2	**3**	20	25	10	10	36	N / A	N / A	N / A	N / A
Chatham	051-0124-0	SR00405	n	CSX RAILROAD	1.3 MI S OF JCT SR 21	95.2	**3**	20	25	10	10	36	N / A	N / A	N / A	N / A
Chatham	051-0125-0	SR00405	n	SR 21	INT I-95 & SR 21	95.2	**4**	20	25	12	12	36	17	02	17	03
Chatham	051-0126-0	SR00405	n	SR 21	INT I-95 & SR 21	91.6	**4**	20	25	12	12	36	16	11	17	02
Chatham	051-0153-0	SR00021	n	SR 21	PORT WENTWORTH - W SECT.	N / A	**3**	N / A	N / A	3	10	27	16	00	16	00
Chatham	051-0154-0	SR00021	n	SR 21	N SECTION OF GARDEN CITY	N / A	**4**	N / A	N / A	3	3	85	19	03	19	06
Crawford	079-0006-0	SR00007	n	CR 117	9 MI N OF ROBERTA	63.7	**3**	20	25	8	8	36	23	11	99	99
Effingham	103-0019-0	SR00026	n	OGEECHEE RIVER OVERFLOW	9 MI S OF GUYTON	**57.2**	1	20	25	3	3	22	N / A	N / A	N / A	N / A

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Effingham	103-0035-0	SR00021	n	SR 21	.5 MI N OF SPRINGFIELD	N / A	**3**	N / A	N / A	6	6	22	13	10	99	99
Emanuel	107-0060-0	SR00297	n	I-16 (SR 404)	6 MI NW OF OAK PARK	98.4	**4**	20	25	2	2	24	18	00	17	01
Harris	145-0008-0	SR00085	n	OSSAHATCHIE CREEK	3.5 MI S OF WAVERLY HALL	**50.9**	**4**	20	25	2	2	24	N / A	N / A	N / A	N / A
Harris	145-0009-0	SR00085	n	MULBERRY CREEK	1.5 MI N OF WAVERLY HALL	**50.4**	1	N / A	N / A	2	2	24	N / A	N / A	N / A	N / A
Harris	145-0010-0	SR00085	n	SOUTHERN RAILROAD	SHILOH - NORTHWEST CORNER	79.3	**3**	20	25	6	6	22	N / A	N / A	N / A	N / A
Harris	145-0028-0	SR00219	n	MOUNTAIN OAK CREEK	1.5 MILES SOUTH WHITESVILLE	66.0	**3**	20	25	5	5	20	N / A	N / A	N / A	N / A
Harris	145-0031-0	SR00315	n	I-185 (SR 411 EXIT 10)	9 MILES S.W. HAMILTON	99.8	**4**	20	25	12	12	24	18	02	16	09
Harris	145-0038-0	SR00411	n	STANDING BOY CREEK	10 MILES S.W. HAMILTON	88.8	**3**	20	25	4	10	24	N / A	N / A	N / A	N / A
Harris	145-0039-0	SR00411	n	STANDING BOY CREEK	10 MILES S.W. HAMILTON	88.8	**3**	20	25	4	10	24	N / A	N / A	N / A	N / A
Harris	145-0041-0	SR00411	n	MULBERRY CREEK	7 MILES S.W. HAMILTON	87.9	**3**	20	25	4	10	24	N / A	N / A	N / A	N / A
Harris	145-0042-0	SR00411	n	MULBERRY CREEK	7 MILES S.W. HAMILTON	87.9	**3**	20	25	4	10	24	N / A	N / A	N / A	N / A
Harris	145-0043-0	SR00411	n	S-2651 L. BLUE SPRINGS R	8 MILES W.S.W. HAMILTON	83.3	**4**	20	25	4	10	24	16	05	99	99
Harris	145-0044-0	SR00411	n	S-2651 L. BLUE SPRINGS R	8.5 MILES W.S.W. HAMILTON	83.3	**4**	20	25	4	10	24	17	11	99	99
Harris	145-0045-0	SR00411	n	SR 116	5 MILES SOUTH WHITESVILLE	97.0	**4**	20	25	4	10	24	18	00	99	99
Harris	145-0046-0	SR00411	n	SR 116	5 MILES SOUTH WHITESVILLE	97.0	**4**	20	25	4	10	24	22	11	99	99
Harris	145-0063-0	SR00001	n	SR 1 (US 27)	3 MILES SOUTH PINE MOUNTAIN	N / A	**3**	N / A	N / A	2	2	25	15	03	99	99
Houston	153-0007-0	SR00007	n	BIG INDIAN CREEK	PERRY - CENTER SECTION	75.0	1	**18**	25	2	2	74	N / A	N / A	N / A	N / A

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Houston	153-0010-0	SR00011	n	SOUTHERN RAILROAD	6.9 MI SE OF PERRY	93.8	**3**	20	25	2	2	24	N / A	N / A	N / A	N / A
Houston	153-0034-0	SR00247	n	BIG INDIAN CREEK	9 MILES SOUTHEAST PERRY	**60.0**	1	20	25	3	3	24	N / A	N / A	N / A	N / A
Houston	153-0041-0	SR00401	n	SR 7 (US 41)	4 MILES SOUTHWEST ELKO	65.0	**3**	20	25	11	11	36	16	02	99	99
Houston	153-0042-0	SR00401	n	SR 7 (US 41)	4 MILES SOUTHWEST EKLO	86.5	**3**	20	25	11	11	36	16	04	99	99
Houston	153-0052-0	SR00401	n	SR 7 (US 341)	PERRY - NW SECTION	90.9	**4**	20	25	12	12	36	16	00	15	09
Houston	153-0079-0	SR00011	n	SR 11 (US 341)	7 MI SE OF PERRY	N / A	5	N / A	N / A	8	8	24	19	08	99	99
Laurens	175-0008-0	SR00019	n	I-16 (SR 404)	3.8 MI S OF DUBLIN	78.0	**3**	20	25	6	6	25	16	07	16	04
Laurens	175-0016-0	SR00026	n	I-16 (SR 404)	2.1 MI SE OF MONTROSE	97.7	**4**	20	25	6	6	24	16	07	16	11
Laurens	175-0017-0	SR00026	n	OCONEE RIVER	NE DUBLIN CITY LIMITS	82.0	**4**	20	25	3	3	53	N / A	N / A	N / A	N / A
Laurens	175-0018-0	SR00026	n	OCONEE RIVER OVERFLOW	EAST DUBLIN	77.0	**3**	20	25	3	3	53	N / A	N / A	N / A	N / A
Laurens	175-0022-0	SR00026	n	INDIAN BRANCH	5.2 MI SE OF BREWTON	**55.3**	1	20	25	2	2	24	N / A	N / A	N / A	N / A
Laurens	175-0031-0	SR00031	n	I-16 (SR 404)	4 MI S OF DUBLIN	99.7	**4**	20	25	10	10	72	17	01	17	06
Liberty	179-0021-0	SR00038	n	I-95 (SR 405)	2 MI SE OF MIDWAY	98.0	**4**	20	25	10	10	24	16	10	16	11
Liberty	179-0050-0	SR00119	n	RUSSELL SWAMP	3.5 MI WEST OF RICEBORO	**47.1**	1	**17**	25	3	3	20	N / A	N / A	N / A	N / A
Muscogee	215-0001-0	SR00520	n	M-8000 CUSTER ROAD	SE COLUMBUS CTY LIMITS	**56.4**	1	N / A	N / A	15	8	24	13	08	13	09
Muscogee	215-0003-0	SR00520	n	I-185 (SR 411)	S.E. COLUMBUS	76.4	**3**	20	25	2	11	36	16	09	16	11
Muscogee	215-0004-0	SR00520	n	I-185 (SR 411)	SE COLUMBUS CITY LIMITS	77.4	**3**	20	25	8	11	22	18	07	18	11
Muscogee	215-0005-0	SR00520	n	BULL CREEK	S. COLUMBUS UAB	93.1	**4**	20	25	9	9	46	N / A	N / A	N / A	N / A
Muscogee	215-0006-0	SR00520	n	BULL CREEK	S. COLUMBUS UAB	93.1	**4**	20	25	2	2	46	N / A	N / A	N / A	N / A

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Muscogee	215-0008-0	SR00001	n	I-185 (SR 411)	NW COLUMBUS	91.0	**4**	20	25	2	2	98	16	09	17	05
Muscogee	215-0009-0	SR00520	n	M-8007- CHATT. RIVER- RR	ALA-GA STATE LINE- WEST COLUMBUS	67.8	**3**	20	25	2	8	24	15	01	17	09
Muscogee	215-0028-0	SR00085	n	NORFOLK SOUTHERN RR.	2.7 MI NE OF JCT SR 1- EAST COLUMBUS	76.5	**3**	20	25	4	12	24	N / A	N / A	N / A	N / A
Muscogee	215-0029-0	SR00085	n	NORFOLK SOUTHERN R/R.	2.7 MI NE OF JCT SR 1- EAST COLUMBUS	76.5	**3**	20	25	4	12	24	N / A	N / A	N / A	N / A
Muscogee	215-0030-0	SR00085	n	M-8056 MILLER ROAD	3.7 MI NE OF JCT SR 1- N.E COLUMBUS	67.0	**3**	20	25	2	8	24	18	04	99	99
Muscogee	215-0031-0	SR00085	n	M-8056 MILLER ROAD	3.7 MI NE OF JCT SR 1- N.E. COLUMBUS	67.0	**3**	20	25	8	2	24	15	09	99	99
Muscogee	215-0037-0	SR00219	n	ROARING BRANCH	N.N.W. COLUMBUS CITY LIMITS	99.0	**3**	20	25	6	6	62	N / A	N / A	N / A	N / A
Muscogee	215-0038-0	SR00219	n	HEIFERHORN CREEK	14 MI NW OF DOWNTOWN COLUMBUS	68.2	1	**19**	25	8	8	24	N / A	N / A	N / A	N / A
Muscogee	215-0039-0	SR00219	n	STANDING BOY CREEK	10 MI N OF COLUMBUS	66.5	1	**17**	25	2	2	24	N / A	N / A	N / A	N / A
Muscogee	215-0050-0	SR00411	n	CS 14006 CUSSETA RD- R.R	6.9 MI SE OF COLUMBUS	61.0	**4**	20	25	4	10	24	21	10	99	99
Muscogee	215-0051-0	SR00411	n	CS 14006 CUSSETA RD- R.R	6.9 MI SE OF COLUMBUS	62.1	**4**	20	25	4	10	24	23	10	99	99
Muscogee	215-0052-0	SR00411	n	M-8000 OLD CUSSETA ROAD	6.8 MI SE OF COLUMBUS	73.9	**3**	20	25	4	10	24	16	05	99	99
Muscogee	215-0053-0	SR00411	n	M-8000 OLD CUSSETA ROAD	6.8 MI SE OF COLUMBUS	73.9	**3**	20	25	10	4	24	18	00	99	99
Muscogee	215-0054-0	SR00411	n	BULL CREEK TRIB.	3.8 MI SE OF COLUMBUS	**59.0**	1	N / A	N / A	4	10	24	N / A	N / A	N / A	N / A
Muscogee	215-0055-0	SR00411	n	BULL CREEK	3.5 MI NE OF COLUMBUS	86.5	**3**	20	25	4	10	36	N / A	N / A	N / A	N / A

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County	Bridge Serial Number	Route Number	Programmed by GDOT/GRIP for Improvement	Intersecting With	Location	Suff Rating	Structure Material*	H Load (less than 20)	HS Load (less than 20)	Inside Shoulder Width (feet)	Outside Shoulder Width (feet)	Through Lane Pavement Width (feet)	Vertical Clearance Feet	Vertical Clearance Inches	Vertical Clearance Opposite Direction Feet	Vertical Clearance Opposite Direction Inches
Muscogee	215-0057-0	SR00411	n	M-8034 MORRIS RD-NOR-SOU	CENTRAL COLUMBUS	91.8	**4**	20	25	4	10	35	26	09	99	99
Muscogee	215-0063-0	SR00411	n	M-8026 EDGEWOOD ROAD	NORTH CENTRAL COLUMBUS	92.4	**3**	20	25	7	10	36	16	07	16	11
Muscogee	215-0065-0	SR00411	n	CS 2202 COLLEGE DRIVE	CENTRAL COLUMBUS	92.4	**3**	20	25	7	10	36	15	01	99	99
Muscogee	215-0067-0	SR00411	n	SR 85(US 27 ALT)(EXIT 7)	SR 85- CENTRAL COLUMBUS	96.0	**3**	20	25	4	10	35	15	10	15	10
Muscogee	215-0069-0	SR00411	n	LINDSEY CREEK TRIB.	3.8 MI NE OF COLUMBUS	66.5	**1**	N / A	N / A	7	10	48	N / A	N / A	N / A	N / A
Muscogee	215-0070-0	SR00411	n	M-8049 ARMOUR ROAD EXIT8	CENTRAL COLUMBUS	93.2	**3**	20	25	7	10	35	15	09	16	05
Muscogee	215-0072-0	SR00411	n	M-8050 AIRPORT THRUWAY	NORTH CENTRAL COLUMBUS EXIT8	92.6	**3**	20	25	6	10	36	16	10	17	10
Muscogee	215-0074-0	SR00411	n	NORFOLK SOUTHERN RR.	NORTHWEST COLUMBUS	90.9	**4**	20	25	10	14	38	N / A	N / A	N / A	N / A
Muscogee	215-0075-0	SR00411	n	NORFOLK SOUTHERN RR.	.5 MI N OF SR 1- NORTH WEST COLUMBUS	96.1	**4**	20	25	10	14	38	N / A	N / A	N / A	N / A
Muscogee	215-0076-0	SR00411	n	M-8060 WHITTLESEY ROAD	NORTHWEST COLUMBUS	93.1	**3**	20	25	10	10	62	16	08	99	99
Muscogee	215-0077-0	SR00411	n	M-8060 WHITTLESEY ROAD	NORTHWEST COLUMBUS	93.1	**3**	20	25	10	10	62	22	09	99	99
Muscogee	215-0081-0	SR00411	n	HEIFERHORN CREEK	NORTH COLUMBUS.	**52.5**	1	N / A	N / A	10	14	24	N / A	N / A	N / A	N / A
Muscogee	215-0084-0	SR00411	n	M-8049 ARMOUR ROAD EXIT8	NORTH CENTRAL COLUMBUS	91.3	**3**	20	25	5	6	36	17	10	17	11
Muscogee	215-0112-0	SR00411	n	I-185 (SR 411)	CENTRAL COLUMBUS	N / A	**3**	N / A	N / A	4	10	36	17	08	20	02
Muscogee	215-0113-0	SR00520	n	SR 520 (US 27)	COLUMBUS - SOUTHSIDE	N / A	**3**	N / A	N / A	2	2	46	16	03	16	06
Muscogee	215-0114-0	SR00001	n	SR 1 (US 27)	W. COLUMBUS UAB	N / A	1	N / A	N / A	0	0	24	13	07	13	07

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Muscogee	215-0149-0	SR00001	n	SR 22- 2 SR 22 RAMPS	NORTH COLUMBUS	93.5	**4**	20	25	2	2	64	19	08	19	08
Muscogee	215-0161-0	SR00411	n	SR 22 SPUR (EXIT 6)	MACON RD.- CENTRAL COLUMBUS	98.0	**3**	20	25	7	10	36	17	08	16	10
Peach	225-0019-0	SR00401	n	I-75	2 MI NE OF BYRON	N / A	**3**	N / A	N / A	10	10	36	16	05	16	11
Stewart	259-0006-0	SR00001	n	HANNAHATCHEE CREEK	7 MILES N. LUMPKIN	85.3	**3**	20	25	8	8	24	N / A	N / A	N / A	N / A
Stewart	259-0015-0	SR00027	n	CSX RAILROAD	IN NE RICHLAND	65.6	**3**	20	25	6	6	22	N / A	N / A	N / A	N / A
Sumter	261-0007-0	SR00027	n	NORFOLK R / R	IN W AMERICUS	69.8	**4**	20	25	2	2	40	N / A	N / A	N / A	N / A
Sumter	261-0011-0	SR00027	n	FLINT RIVER-CR 301	13.6 MILES EAST AMERICUS	72.9	**4**	20	25	2	2	23	10	06	99	99
Talbot	269-0018-0	SR00128	n	PATSILIGA CREEK OVERFLOW	.5 MI N OF REYNOLDS	**56.3**	1	20	25	6	6	24	N / A	N / A	N / A	N / A
Talbot	269-0019-0	SR00128	n	PATSILIGA CREEK	.7 MI N OF REYNOLDS	**56.3**	1	20	25	6	6	24	N / A	N / A	N / A	N / A
Talbot	269-0020-0	SR00128	n	FLINT RIVER	8 MI N OF REYNOLDS	**20.4**	**4**	**15**	25	7	7	24	N / A	N / A	N / A	N / A
Treutlen	283-0001-0	SR00015	n	I-16 (SR 404)	3 MI N OF SOPERTON	96.1	**4**	20	25	2	2	24	17	04	16	06
Treutlen	283-0006-0	SR00029	n	I-16 (SR 404)	6 MI NW OF SOPERTON	83.0	**4**	20	25	2	2	24	17	02	16	10
Treutlen	283-5034-0	SR00029	n	SR 29	2.8 MI NW OF SOPERTON	N / A	**3**	N / A	N / A	2	2	24	17	01	99	99

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Bleckley	023-0001-0	SR00026	n	GUM SWAMP CREEK	6.2 MI NE OF COCHRAN	85.3	**4**	20	25	2	2	22	N / A	N / A	N / A	N / A
Bryan	029-0013-0	SR00030	n	I-16 (SR 404)	1.5 MI SW OF JCT SR 26	81.0	**4**	20	25	3	5	22	16	09	16	08
Bryan	029-0014-0	SR00030	n	I-16 (SR 404)	1.5 MI SW OF JCT SR 26	81.0	**4**	20	25	5	2	22	16	11	16	10
Bulloch	031-0002-0	SR00024	n	FLOYD BRANCH	5 MI E OF STATESBORO	82.7	**3**	N / A	N / A	2	2	21	N / A	N / A	N / A	N / A
Bulloch	031-0003-0	SR00024	n	SPRING CREEK	8 MI E OF STATESBORO	88.0	**3**	N / A	N / A	2	2	19	N / A	N / A	N / A	N / A
Bulloch	031-0005-0	SR00024	n	OGEECHEE RIVER	15 MI E OF STATESBORO	63.6	**4**	20	23	2	2	20	N / A	N / A	N / A	N / A
Bulloch	031-0022-0	SR00067	n	I-16 (SR 404)	9 MI SW OF BROOKLET	98.2	**4**	20	25	12	10	23	16	10	17	01
Bulloch	031-0036-0	SR00073	n	I-16 (SR 404)	3.8 MI SE OF REGISTER	97.5	**4**	20	25	4	11	23	16	11	17	05
Bulloch	031-0037-0	SR00073	n	I-16 (SR 404)	3.8 MI SE OF REGISTER	97.5	**4**	20	25	4	11	23	17	07	18	01
Bulloch	031-0047-0	SR00119	n	I-16 (SR 404)	13.3 MI SE OF BROOKLET	100.0	**4**	20	25	10	10	24	16	09	16	11
Bulloch	031-0050-0	SR00119	n	OGEECHEE RIVER	13.7 MI SE OF BROOKLET	76.8	**4**	20	25	2	2	24	N / A	N / A	N / A	N / A
Bulloch	031-0106-0	SR00024	n	MILL CREEK	4.2 MI E OF STATESBORO	98.3	**3**	20	25	1	1	22	N / A	N / A	N / A	N / A
Candler	043-0004-0	SR00023	n	I-16 (SR 404)	1.6 MI S OF METTER	88.2	**4**	20	25	8	8	24	17	00	17	01
Candler	043-0016-0	SR00129	n	I-16 (SR 404)	1.6 MI S OF METTER	99.3	**4**	20	25	2	2	22	16	11	17	01
Chatham	051-0047-0	SR00026	n	CSX RAILROAD (641173J)	W SECTION OF SAVANNAH	76.6	**3**	20	25	10	10	36	N / A	N / A	N / A	N / A
Chatham	051-0049-0	SR00026	n	RAILROAD REMOVED	IN W SECTION OF SAVANNAH	75.5	**3**	20	25	10	10	24	N / A	N / A	N / A	N / A
Chatham	051-0054-0	SR00025	n	SAVANNAH RIVER	1 MI NE OF PORT WENTWORT	62.7	**4**	20	25	8	8	24	15	01	15	01
Chatham	051-0060-0	SR00026	n	CSX RAILROAD (641183P)	IN GARDEN CITY	90.4	**3**	20	25	10	10	60	N / A	N / A	N / A	N / A
Chatham	051-0066-0	SR00026	n	LAZERATTO CREEK	10 MI SE OF SAVANNAH	52.0	**4**	20	25	8	8	26	N / A	N / A	N / A	N / A

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Chatham	051-0069-0	SR00030	n	CSX RAILROAD	1.5 MI W INT I-95 & SR 21	98.1	3	20	25	8	8	24	N / A	N / A	N / A	N / A
Chatham	051-0079-0	SR00307	n	I-16 (SR 404)	5 MI W OF SAVANNAH	94.1	4	20	25	3	3	24	16	07	16	04
Chatham	051-0105-0	SR00405	n	SR 204	9 MI SW OF SAVANNAH	81.0	3	20	25	10	12	36	16	03	17	06
Chatham	051-0109-0	SR00405	n	I-16 (SR 404)	7 MI W OF SAVANNAH	83.0	4	20	25	10	12	36	17	09	17	03
Chatham	051-0111-0	SR00405	n	CSX RAILROAD	10 MI NE OF SAVANNAH	94.6	4	20	25	10	12	36	N / A	N / A	N / A	N / A
Chatham	051-0112-0	SR00405	n	CSX RAILROAD	10 MI NE OF SAVANNAH	94.6	4	20	25	10	12	36	N / A	N / A	N / A	N / A
Chatham	051-0113-0	SR00405	n	SR 26 (US 80)	10.5 MI NW OF SAVANNAH	98.0	4	20	25	10	12	36	16	04	17	05
Chatham	051-0114-0	SR00405	n	SR 26 (US 80)	10.5 MI NW OF SAVANNAH	98.0	4	20	25	10	12	36	17	04	17	02
Chatham	051-0119-0	SR00405	n	AUGUSTINE CREEK	1.6 MI S OF JCT SR 21	95.2	3	20	25	10	10	36	N / A	N / A	N / A	N / A
Chatham	051-0120-0	SR00405	n	AUGUSTINE CREEK	1.6 MI S OF JCT SR 21	95.2	3	20	25	10	10	36	N / A	N / A	N / A	N / A
Chatham	051-0121-0	SR00405	n	CSX RAILROAD	1.4 MI S OF JCT SR 21	95.2	3	20	25	10	10	36	N / A	N / A	N / A	N / A
Chatham	051-0122-0	SR00405	n	CSX RAILROAD	1.4 MI S OF JCT SR 21	95.2	3	20	25	10	10	36	N / A	N / A	N / A	N / A
Chatham	051-0123-0	SR00405	n	CSX RAILROAD	1.3 MI S OF JCT SR 21	95.2	3	20	25	10	10	36	N / A	N / A	N / A	N / A
Chatham	051-0124-0	SR00405	n	CSX RAILROAD	1.3 MI S OF JCT SR 21	95.2	3	20	25	10	10	36	N / A	N / A	N / A	N / A
Chatham	051-0125-0	SR00405	n	SR 21	INT I-95 & SR 21	95.2	4	20	25	12	12	36	17	02	17	03
Chatham	051-0126-0	SR00405	n	SR 21	INT I-95 & SR 21	91.6	4	20	25	12	12	36	16	11	17	02
Chatham	051-0153-0	SR00021	n	SR 21	PORT WENTWORTH - W SECT.	N / A	3	N / A	N / A	3	10	27	16	00	16	00
Chatham	051-0154-0	SR00021	n	SR 21	N SECTION OF GARDEN CITY	N / A	4	N / A	N / A	3	3	85	19	03	19	06
Crawford	079-0006-0	SR00007	n	CR 117	9 MI N OF ROBERTA	63.7	3	20	25	8	8	36	23	11	99	99
Effingham	103-0019-0	SR00026	n	OGEECHEE RIVER OVERFLOW	9 MI S OF GUYTON	57.2	1	20	25	3	3	22	N / A	N / A	N / A	N / A

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Effingham	103-0035-0	SR00021	n	SR 21	.5 MI N OF SPRINGFIELD	N / A	**3**	N / A	N / A	6	6	22	13	10	99	99
Emanuel	107-0060-0	SR00297	n	I-16 (SR 404)	6 MI NW OF OAK PARK	98.4	**4**	20	25	2	2	24	18	00	17	01
Harris	145-0008-0	SR00085	n	OSSAHATCHIE CREEK	3.5 MI S OF WAVERLY HALL	**50.9**	**4**	20	25	2	2	24	N / A	N / A	N / A	N / A
Harris	145-0009-0	SR00085	n	MULBERRY CREEK	1.5 MI N OF WAVERLY HALL	**50.4**	1	N / A	N / A	2	2	24	N / A	N / A	N / A	N / A
Harris	145-0010-0	SR00085	n	SOUTHERN RAILROAD	SHILOH - NORTHWEST CORNER	79.3	**3**	20	25	6	6	22	N / A	N / A	N / A	N / A
Harris	145-0028-0	SR00219	n	MOUNTAIN OAK CREEK	1.5 MILES SOUTH WHITESVILLE	66.0	**3**	20	25	5	5	20	N / A	N / A	N / A	N / A
Harris	145-0031-0	SR00315	n	I-185 (SR 411 EXIT 10)	9 MILES S.W. HAMILTON	99.8	**4**	20	25	12	12	24	18	02	16	09
Harris	145-0038-0	SR00411	n	STANDING BOY CREEK	10 MILES S.W. HAMILTON	88.8	**3**	20	25	4	10	24	N / A	N / A	N / A	N / A
Harris	145-0039-0	SR00411	n	STANDING BOY CREEK	10 MILES S.W. HAMILTON	88.8	**3**	20	25	4	10	24	N / A	N / A	N / A	N / A
Harris	145-0041-0	SR00411	n	MULBERRY CREEK	7 MILES S.W. HAMILTON	87.9	**3**	20	25	4	10	24	N / A	N / A	N / A	N / A
Harris	145-0042-0	SR00411	n	MULBERRY CREEK	7 MILES S.W. HAMILTON	87.9	**3**	20	25	4	10	24	N / A	N / A	N / A	N / A
Harris	145-0043-0	SR00411	n	S-2651 L. BLUE SPRINGS R	8 MILES W.S.W. HAMILTON	83.3	**4**	20	25	4	10	24	16	05	99	99
Harris	145-0044-0	SR00411	n	S-2651 L. BLUE SPRINGS R	8.5 MILES W.S.W. HAMILTON	83.3	**4**	20	25	4	10	24	17	11	99	99
Harris	145-0045-0	SR00411	n	SR 116	5 MILES SOUTH WHITESVILLE	97.0	**4**	20	25	4	10	24	18	00	99	99
Harris	145-0046-0	SR00411	n	SR 116	5 MILES SOUTH WHITESVILLE	97.0	**4**	20	25	4	10	24	22	11	99	99
Harris	145-0063-0	SR00001	n	SR 1 (US 27)	3 MILES SOUTH PINE MOUNTAIN	N / A	**3**	N / A	N / A	2	2	25	15	03	99	99
Houston	153-0007-0	SR00007	n	BIG INDIAN CREEK	PERRY - CENTER SECTION	75.0	1	**18**	25	2	2	74	N / A	N / A	N / A	N / A

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Houston	153-0010-0	SR00011	n	SOUTHERN RAILROAD	6.9 MI SE OF PERRY	93.8	**3**	20	25	2	2	24	N / A	N / A	N / A	N / A
Houston	153-0034-0	SR00247	n	BIG INDIAN CREEK	9 MILES SOUTHEAST PERRY	**60.0**	1	20	25	3	3	24	N / A	N / A	N / A	N / A
Houston	153-0041-0	SR00401	n	SR 7 (US 41)	4 MILES SOUTHWEST ELKO	65.0	**3**	20	25	11	11	36	16	02	99	99
Houston	153-0042-0	SR00401	n	SR 7 (US 41)	4 MILES SOUTHWEST EKLO	86.5	**3**	20	25	11	11	36	16	04	99	99
Houston	153-0052-0	SR00401	n	SR 7 (US 341)	PERRY - NW SECTION	90.9	**4**	20	25	12	12	36	16	00	15	09
Houston	153-0079-0	SR00011	n	SR 11 (US 341)	7 MI SE OF PERRY	N / A	5	N / A	N / A	8	8	24	19	08	99	99
Laurens	175-0008-0	SR00019	n	I-16 (SR 404)	3.8 MI S OF DUBLIN	78.0	**3**	20	25	6	6	25	16	07	16	04
Laurens	175-0016-0	SR00026	n	I-16 (SR 404)	2.1 MI SE OF MONTROSE	97.7	**4**	20	25	6	6	24	16	07	16	11
Laurens	175-0017-0	SR00026	n	OCONEE RIVER	NE DUBLIN CITY LIMITS	82.0	**4**	20	25	3	3	53	N / A	N / A	N / A	N / A
Laurens	175-0018-0	SR00026	n	OCONEE RIVER OVERFLOW	EAST DUBLIN	77.0	**3**	20	25	3	3	53	N / A	N / A	N / A	N / A
Laurens	175-0022-0	SR00026	n	INDIAN BRANCH	5.2 MI SE OF BREWTON	**55.3**	1	20	25	2	2	24	N / A	N / A	N / A	N / A
Laurens	175-0031-0	SR00031	n	I-16 (SR 404)	4 MI S OF DUBLIN	99.7	**4**	20	25	10	10	72	17	01	17	06
Liberty	179-0021-0	SR00038	n	I-95 (SR 405)	2 MI SE OF MIDWAY	98.0	**4**	20	25	10	10	24	16	10	16	11
Liberty	179-0050-0	SR00119	n	RUSSELL SWAMP	3.5 MI WEST OF RICEBORO	**47.1**	1	**17**	25	3	3	20	N / A	N / A	N / A	N / A
Muscogee	215-0001-0	SR00520	n	M-8000 CUSTER ROAD	SE COLUMBUS CTY LIMITS	**56.4**	1	N / A	N / A	15	8	24	13	08	13	09
Muscogee	215-0003-0	SR00520	n	I-185 (SR 411)	S.E. COLUMBUS	76.4	**3**	20	25	2	11	36	16	09	16	11
Muscogee	215-0004-0	SR00520	n	I-185 (SR 411)	SE COLUMBUS CITY LIMITS	77.4	**3**	20	25	8	11	22	18	07	18	11
Muscogee	215-0005-0	SR00520	n	BULL CREEK	S. COLUMBUS UAB	93.1	**4**	20	25	9	9	46	N / A	N / A	N / A	N / A
Muscogee	215-0006-0	SR00520	n	BULL CREEK	S. COLUMBUS UAB	93.1	**4**	20	25	2	2	46	N / A	N / A	N / A	N / A

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													Feet	Inches	Feet	Inches
Muscogee	215-0008-0	SR00001	n	I-185 (SR 411)	NW COLUMBUS	91.0	**4**	20	25	2	2	98	16	09	17	05
Muscogee	215-0009-0	SR00520	n	M-8007- CHATT. RIVER- RR	ALA-GA STATE LINE- WEST COLUMBUS	67.8	**3**	20	25	2	8	24	15	01	17	09
Muscogee	215-0028-0	SR00085	n	NORFOLK SOUTHERN RR.	2.7 MI NE OF JCT SR 1- EAST COLUMBUS	76.5	**3**	20	25	4	12	24	N / A	N / A	N / A	N / A
Muscogee	215-0029-0	SR00085	n	NORFOLK SOUTHERN R/R.	2.7 MI NE OF JCT SR 1- EAST COLUMBUS	76.5	**3**	20	25	4	12	24	N / A	N / A	N / A	N / A
Muscogee	215-0030-0	SR00085	n	M-8056 MILLER ROAD	3.7 MI NE OF JCT SR 1- N.E COLUMBUS	67.0	**3**	20	25	2	8	24	18	04	99	99
Muscogee	215-0031-0	SR00085	n	M-8056 MILLER ROAD	3.7 MI NE OF JCT SR 1- N.E. COLUMBUS	67.0	**3**	20	25	8	2	24	15	09	99	99
Muscogee	215-0037-0	SR00219	n	ROARING BRANCH	N.N.W. COLUMBUS CITY LIMITS	99.0	**3**	20	25	6	6	62	N / A	N / A	N / A	N / A
Muscogee	215-0038-0	SR00219	n	HEIFERHORN CREEK	14 MI NW OF DOWNTOWN COLUMBUS	68.2	1	**19**	25	8	8	24	N / A	N / A	N / A	N / A
Muscogee	215-0039-0	SR00219	n	STANDING BOY CREEK	10 MI N OF COLUMBUS	66.5	1	**17**	25	2	2	24	N / A	N / A	N / A	N / A
Muscogee	215-0050-0	SR00411	n	CS 14006 CUSSETA RD- R.R	6.9 MI SE OF COLUMBUS	61.0	**4**	20	25	4	10	24	21	10	99	99
Muscogee	215-0051-0	SR00411	n	CS 14006 CUSSETA RD- R.R	6.9 MI SE OF COLUMBUS	62.1	**4**	20	25	4	10	24	23	10	99	99
Muscogee	215-0052-0	SR00411	n	M-8000 OLD CUSSETA ROAD	6.8 MI SE OF COLUMBUS	73.9	**3**	20	25	4	10	24	16	05	99	99
Muscogee	215-0053-0	SR00411	n	M-8000 OLD CUSSETA ROAD	6.8 MI SE OF COLUMBUS	73.9	**3**	20	25	10	4	24	18	00	99	99
Muscogee	215-0054-0	SR00411	n	BULL CREEK TRIB.	3.8 MI SE OF COLUMBUS	**59.0**	1	N / A	N / A	4	10	24	N / A	N / A	N / A	N / A
Muscogee	215-0055-0	SR00411	n	BULL CREEK	3.5 MI NE OF COLUMBUS	86.5	**3**	20	25	4	10	36	N / A	N / A	N / A	N / A

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Non-Programmed Bridge Deficiencies on HPC 6 Connecting Roads

Critical Deficiencies are Shaded

County	Bridge Serial Number	Route Number	Programmed by GDOT/GRIP for Improvement	Intersecting With	Location	Suff Rating	Structure Material*	H Load (less than 20)	HS Load (less than 20)	Inside Shoulder Width (feet)	Outside Shoulder Width (feet)	Through Lane Pavement Width (feet)	Vertical Clearance Feet	Vertical Clearance Inches	Vertical Clearance Opposite Direction Feet	Vertical Clearance Opposite Direction Inches
Muscogee	215-0057-0	SR00411	n	M-8034 MORRIS RD-NOR-SOU	CENTRAL COLUMBUS	91.8	**4**	20	25	4	10	35	26	09	99	99
Muscogee	215-0063-0	SR00411	n	M-8026 EDGEWOOD ROAD	NORTH CENTRAL COLUMBUS	92.4	**3**	20	25	7	10	36	16	07	16	11
Muscogee	215-0065-0	SR00411	n	CS 2202 COLLEGE DRIVE	CENTRAL COLUMBUS	92.4	**3**	20	25	7	10	36	15	01	99	99
Muscogee	215-0067-0	SR00411	n	SR 85(US 27 ALT)(EXIT 7)	SR 85-CENTRAL COLUMBUS	96.0	**3**	20	25	4	10	35	15	10	15	10
Muscogee	215-0069-0	SR00411	n	LINDSEY CREEK TRIB.	3.8 MI NE OF COLUMBUS	66.5	**1**	N / A	N / A	7	10	48	N / A	N / A	N / A	N / A
Muscogee	215-0070-0	SR00411	n	M-8049 ARMOUR ROAD EXIT8	CENTRAL COLUMBUS	93.2	**3**	20	25	7	10	35	15	09	16	05
Muscogee	215-0072-0	SR00411	n	M-8050 AIRPORT THRUWAY	NORTH CENTRAL COLUMBUS EXIT8	92.6	**3**	20	25	6	10	36	16	10	17	10
Muscogee	215-0074-0	SR00411	n	NORFOLK SOUTHERN RR.	NORTHWEST COLUMBUS	90.9	**4**	20	25	10	14	38	N / A	N / A	N / A	N / A
Muscogee	215-0075-0	SR00411	n	NORFOLK SOUTHERN RR.	.5 MI N OF SR 1-NORTH WEST COLUMBUS	96.1	**4**	20	25	10	14	38	N / A	N / A	N / A	N / A
Muscogee	215-0076-0	SR00411	n	M-8060 WHITTLESEY ROAD	NORTHWEST COLUMBUS	93.1	**3**	20	25	10	10	62	16	08	99	99
Muscogee	215-0077-0	SR00411	n	M-8060 WHITTLESEY ROAD	NORTHWEST COLUMBUS	93.1	**3**	20	25	10	10	62	22	09	99	99
Muscogee	215-0081-0	SR00411	n	HEIFERHORN CREEK	NORTH COLUMBUS.	**52.5**	1	N / A	N / A	10	14	24	N / A	N / A	N / A	N / A
Muscogee	215-0084-0	SR00411	n	M-8049 ARMOUR ROAD EXIT8	NORTH CENTRAL COLUMBUS	91.3	**3**	20	25	5	6	36	17	10	17	11
Muscogee	215-0112-0	SR00411	n	I-185 (SR 411)	CENTRAL COLUMBUS	N / A	**3**	N / A	N / A	4	10	36	17	08	20	02
Muscogee	215-0113-0	SR00520	n	SR 520 (US 27)	COLUMBUS - SOUTHSIDE	N / A	**3**	N / A	N / A	2	2	46	16	03	16	06
Muscogee	215-0114-0	SR00001	n	SR 1 (US 27)	W. COLUMBUS UAB	N / A	1	N / A	N / A	0	0	24	13	07	13	07

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Non-Programmed Bridge Deficiencies on HPC 6 Connecting Roads

Critical Deficiencies are Shaded

County	Bridge Serial Number	Route Number	Programmed by GDOT/GRIP for Improvement	Intersecting With	Location	Suff Rating	Structure Material*	H Load (less than 20)	HS Load (less than 20)	Inside Shoulder Width (feet)	Outside Shoulder Width (feet)	Through Lane Pavement Width (feet)	Vertical Clearance Feet	Vertical Clearance Inches	Vertical Clearance Opposite Direction Feet	Vertical Clearance Opposite Direction Inches
Muscogee	215-0149-0	SR00001	n	SR 22- 2 SR 22 RAMPS	NORTH COLUMBUS	93.5	**4**	20	25	2	2	64	19	08	19	08
Muscogee	215-0161-0	SR00411	n	SR 22 SPUR (EXIT 6)	MACON RD.- CENTRAL COLUMBUS	98.0	**3**	20	25	7	10	36	17	08	16	10
Peach	225-0019-0	SR00401	n	I-75	2 MI NE OF BYRON	N / A	**3**	N / A	N / A	10	10	36	16	05	16	11
Stewart	259-0006-0	SR00001	n	HANNAHATCHEE CREEK	7 MILES N. LUMPKIN	85.3	**3**	20	25	8	8	24	N / A	N / A	N / A	N / A
Stewart	259-0015-0	SR00027	n	CSX RAILROAD	IN NE RICHLAND	65.6	**3**	20	25	6	6	22	N / A	N / A	N / A	N / A
Sumter	261-0007-0	SR00027	n	NORFOLK R / R	IN W AMERICUS	69.8	**4**	20	25	2	2	40	N / A	N / A	N / A	N / A
Sumter	261-0011-0	SR00027	n	FLINT RIVER- CR 301	13.6 MILES EAST AMERICUS	72.9	**4**	20	25	2	2	23	10	06	99	99
Talbot	269-0018-0	SR00128	n	PATSILIGA CREEK OVERFLOW	.5 MI N OF REYNOLDS	**56.3**	1	20	25	6	6	24	N / A	N / A	N / A	N / A
Talbot	269-0019-0	SR00128	n	PATSILIGA CREEK	.7 MI N OF REYNOLDS	**56.3**	1	20	25	6	6	24	N / A	N / A	N / A	N / A
Talbot	269-0020-0	SR00128	n	FLINT RIVER	8 MI N OF REYNOLDS	**20.4**	**4**	**15**	25	7	7	24	N / A	N / A	N / A	N / A
Treutlen	283-0001-0	SR00015	n	I-16 (SR 404)	3 MI N OF SOPERTON	96.1	**4**	20	25	2	2	24	17	04	16	06
Treutlen	283-0006-0	SR00029	n	I-16 (SR 404)	6 MI NW OF SOPERTON	83.0	**4**	20	25	2	2	24	17	02	16	10
Treutlen	283-5034-0	SR00029	n	SR 29	2.8 MI NW OF SOPERTON	N / A	**3**	N / A	N / A	2	2	24	17	01	99	99

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Programmed Bridges on HPC 6 Mainline

Critical Deficiencies are Shaded

Bridge Serial Number	Route Number	Intersecting With	Location	Suff Rating	Structure Material*	H Load (less than 20)	HS Load (less than 20)	Inside Shoulder Width (feet)	Outside Shoulder Width (feet)	Through Lane Pavement Width (feet)	Vertical Clearance Feet	Vertical Clearance Inches	Vertical Clearance Opposite Direction Feet	Vertical Clearance Opposite Direction Inches
031-0061-0	SR00404	FAS 733 DAISY ROAD	9 MI SW OF BROOKLET	85	**3**	20	25	4	10	24	16	06	00	00
031-0062-0	SR00404	FAS 733 DAISY ROAD	9 MI SW OF BROOKLET	90	**3**	20	25	4	10	24	17	00	99	99
051-0059-0	SR00404	BACK RIVER	1 MI N OF SAVANNAH	**42**	1	20	25	10	10	24	N / A	N / A	N / A	N / A
051-0092-0	SR00404	SR 421 (I-516)	IN SAVANNAH CITY LIMITS	77	**4**	20	25	3	10	24	16	09	16	06
051-0093-0	SR00404	SR 421 (I-516)	IN SAVANNAH CITY LIMITS	77	**4**	20	25	4	10	24	16	05	17	08
051-0095-0	SR00404	M-4079 STILES AVE.	IN SAVANNAH CITY LIMITS	78	**4**	20	25	4	10	46	16	03	99	99
051-0096-0	SR00404	M-4079 STILES AVE.	IN SAVANNAH CITY LIMITS	78	**4**	20	25	4	10	24	17	00	99	99
175-0079-0	SR00404	OCONEE RIVER	5 MI S OF DUBLIN	75	**4**	20	25	4	10	24	N / A	N / A	N / A	N / A
175-0080-0	SR00404	OCONEE RIVER	5 MI S OF DUBLIN	75	**4**	20	25	4	10	24	N / A	N / A	N / A	N / A
215-0016-0	SR00022	BULL CREEK	6 MILES EAST COLUMBUS	74	3	20	25	8	8	24	N / A	N / A	N / A	N / A
283-0035-0	SR00404	CR 102- CSX RR (641025P)	7 MI NW OF SOPERTON	77	3	20	25	4	10	24	19	10	99	99
283-0036-0	SR00404	CR 102- CSX RR (641025P)	7 MI NW OF SOPERTON	79	3	20	25	4	10	24	22	04	99	99

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Non-Programmed Bridge Deficiencies on HPC 6 Mainline

Critical Deficiencies are Shaded

County	Bridge Serial Number	Route Number	Intersecting With	Location	Suff Rating	Structure Material*	H Load (less than 20)	HS Load (less than 20)	Inside Shoulder Width (feet)	Outside Shoulder Width (feet)	Through Lane Pavement Width (feet)	Vertical Clearance Feet	Vertical Clearance Inches	Vertical Clearance Opposite Direction Feet	Vertical Clearance Opposite Direction Inches
Bulloch	031-0061-0	SR00404	FAS 733 DAISY ROAD	9 MI SW OF BROOKLET	85	**3**	20	25	4	10	24	16	06	00	00
Bulloch	031-0062-0	SR00404	FAS 733 DAISY ROAD	9 MI SW OF BROOKLET	90	**3**	20	25	4	10	24	17	00	99	99
Candler	043-0017-0	SR00404	SR 57	6.2 MI SW OF METTER	96	**3**	20	25	4	10	24	16	05	16	08
Candler	043-0018-0	SR00404	SR 57	6.2 MI SW OF METTER	96	**3**	20	25	4	10	24	17	02	17	02
Candler	043-0028-0	SR00404	CR 49	7.5 MI SE OF METTER	76	**3**	20	25	4	10	24	16	05	16	05
Candler	043-0029-0	SR00404	CR 49	7.5 MI SE OF METTER	76	**3**	20	25	4	10	24	16	05	16	05
Chatham	051-0087-0	SR00404	CR 674- CSX RAILROAD	2 MI W OF SAVANNAH	82	**4**	20	25	4	10	24	24	01	99	99
Chatham	051-0089-0	SR00404	CR 654 TREMONT AVE- CSX	.25 MI W OF SAVANNAH	94	**4**	20	25	4	10	24	24	06	99	99
Chatham	051-0090-0	SR00404	CR 654 TREMONT AVE- CSX	.25 MI W OF SAVANNAH	94	**4**	20	25	4	10	36	25	11	99	99
Chatham	051-0097-0	SR00404	M-4079 GWINNETT STREET	W CITY LIMITS OF SAVANNAH	92	**3**	20	25	4	10	24	17	03	16	08
Chatham	051-0098-0	SR00404	M-4079 GWINNETT STREET	W CITY LIMITS OF SAVANNAH	93	**3**	20	25	10	4	37	16	07	16	07
Chatham	051-0101-0	SR00404	M-4052- CS 1506 W BROAD	IN CITY LIMITS SAVANNAH	75	**3**	20	25	3	3	24	16	08	99	99
Crawford	079-0014-0	SR00096	MACOMIS CREEK	10 MI S OF ROBERTA	**40**	4	**15**	25	7	7	24	N / A	N / A	N / A	N / A
Crawford	079-0007-0	SR00022	BAILEY BRANCH	8 MI W OF ROBERTA	**51**	1	N / A	N / A	8	8	24	N / A	N / A	N / A	N / A
Crawford	079-0008-0	SR00022	ULCOHATCHEE CREEK	6 MI W OF ROBERTA	**53**	1	20	25	2	2	24	N / A	N / A	N / A	N / A
Crawford	079-0011-0	SR00022	ECHECONNEE CREEK	10 MI NE OF ROBERTA	**40**	1	20	25	2	8	36	N / A	N / A	N / A	N / A
Emanuel	107-0069-0	SR00404	SR 4 (US 1)	2.8 MI N OF OAK PARK	97	**4**	20	25	4	10	24	17	08	17	08
Emanuel	107-0070-0	SR00404	SR 4 (US 1)	3 MI N OF OAK PARK	97	**4**	20	25	4	10	24	16	02	16	03
Houston	153-0028-0	SR00096	OCMULGEE RIVER	3.3 MILES EAST BONAIRE	65	**4**	20	25	9	9	24	N / A	N / A	N / A	N / A
Muscogee	215-0016-0	SR00022	BULL CREEK	6 MILES EAST COLUMBUS	74	3	20	25	8	8	24	N / A	N / A	N / A	N / A
Muscogee	215-0134-0	SR00022	I-185(SR411)-2 I-185 RMP	N. COLUMBUS BY-PASS EXIT 7(411)	99	4	20	25	10	10	36	18	09	18	11
Muscogee	215-0135-0	SR00022	I-185(SR411)-2 I-185 RMP	NORTH COLUMBUS	98	4	20	25	10	10	36	17	07	17	10

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Non-Programmed Bridge Deficiencies on HPC 6 Mainline

Critical Deficiencies are Shaded

County	Bridge Serial Number	Route Number	Intersecting With	Location	Suff Rating	Structure Material*	H Load (less than 20)	HS Load (less than 20)	Inside Shoulder Width (feet)	Outside Shoulder Width (feet)	Through Lane Pavement Width (feet)	Vertical Clearance Feet	Vertical Clearance Inches	Vertical Clearance Opposite Direction Feet	Vertical Clearance Opposite Direction Inches
Muscogee	215-0146-0	SR00022	I-185(SR411)-2 I-185 RMP	NORTH COLUMBUS	98	4	20	25	4	10	24	21	00	21	03
Muscogee	215-0147-0	SR00022	I-185(SR411)-2 I-185 RMP	N. COLUMBUS - EXIT 4	98	4	20	25	4	10	24	22	04	99	99
Muscogee	215-0148-0	SR00022	SR 22 (US 80)	OVER SR 22 @ 4.41E-NORTH COLUMBUS	N / A	4	N / A	N / A	4	10	24	17	11	99	99
Talbot	263-0003-0	SR00022	SOUTH FORK UPATOI CREEK	1 MI N OF GENEVA	**57**	1	20	25	7	7	23	N / A	N / A	N / A	N / A
Talbot	263-0008-0	SR00022	POTTERS CREEK	10.1 MI E OF TALBOTTON	**49**	1	20	25	2	2	22	N / A	N / A	N / A	N / A
Talbot	263-0030-0	SR00022	SR 22 (US 80)	IN TALBOTTON CITY LIMITS	N / A	3	N / A	N / A	3	6	22	N / A	N / A	N / A	N / A
Treutlen	283-0041-0	SR00404	CR 166	3.3 MI NE OF SOPERTON	97	3	20	25	4	10	24	16	09	99	99
Treutlen	283-0042-0	SR00404	CR 166	3.3 MI NE OF SOPERTON	76	3	20	25	4	10	24	16	09	99	99
Treutlen	283-0047-0	SR00404	SR 56 (US 221)	6.8 MI NE OF SOPERTON	76	3	20	25	4	10	24	16	08	99	99
Treutlen	283-0048-0	SR00404	SR 56 (US 221)	6.8 MI NE OF SOPERTON	77	3	20	25	4	10	24	16	07	99	99
Twiggs	289-0019-0	SR00096	I-16 (SR 404)	4.5 MI S OF JEFFERSONVILL	92	4	20	25	7	7	22	17	03	17	00
Twiggs	289-0023-0	SR00404	CR 71	3.6 MI N OF BULLARD	96	3	20	25	4	10	24	22	03	99	99

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Appendix G

At Grade Railroad Crossings on Mainline and Connecting Roads

At Grade Railroad Crossings on Mainline and Connecting Roads

HPC 6 Mainline

County	RailRoad ID Number	Railroad	Crossing Route	Street or Road Name	Nearest City	No. of Daily Trains	Concrete Panels?	Nearby Intersecting Hwy.
Crawford	734047Y	Norfolk Southern Corp. (NS)	SR96		Reynolds	2	No	Less than 75 feet
Peach		Southern Railway Company (nsx)	49C (Fort Valley Bypass)		Fort Valley		No	
Houston	729204E	Southern Railway Company (nsx)	SR96		Bonaire	3	Yes	Less than 75 feet
Twiggs	729405V	Norfolk Southern Corp. (NS)	SR96		Cochran	2		75 to 150 feet
Twiggs	636084G	Wilmington Terminal Railroad Incorporated	SR96, I-16	N. Church St	Jeffersonville	0		Less than 75 feet

HPC 6 Connecting Roads

County	RailRoad ID Number	Railroad	Crossing Route	Street or Road Name	Nearest City	No. of Daily Trains	Concrete Panels?	Nearby Intersecting Hwy.
Taylor	734026F	Southern Railway Company (nsx)	US 19, SR3	Poplar St	Butler	2		Less than 75 feet
Taylor	734038A	Southern Railway Company (nsx)	SR128	Winston St	Reynolds	3	No	Less than 75 feet
Emanuel	732672C	Southern Railway Company (nsx)	US 1, SR 4	S. Main St	Swainsboro	0		75 to 150 feet
Bulloch	620202J	Norfolk Southern Corp. (NS)	CR 232		Statesboro	2		75 to 150 feet
Bulloch	620197P	Norfolk Southern Corp. (NS)	SR 67	Fair Rd	Statesboro	2		Less than 75 feet
Bulloch	620198W	Norfolk Southern Corp. (NS)	GA 67?/ SR73	Brannen St&Main St	Statesboro	2		Less than 75 feet
Bulloch	620165J	Norfolk Southern Corp. (NS)	US 80, SR 26, US 25		Statesboro	2		75 to 150 feet
Bulloch	620164C	Norfolk Southern Corp. (NS)	US 301, SR73		Statesboro	2		75 to 150 feet
Bryan	635942H	Wilmington Terminal Railroad Incorporated	SR 67, SR 119		Pembroke	2		75 to 150 feet
Effingham	635128B	CSX Transportation	SR 21	Columbia Ave	Rincon	0		
Effingham	620046A	Southern Railway Company (nsx)	SR 119	Madison St	Springfield	2		75 to 150 feet
Stewart	643923Y	Georgia Southwestern Railroad Division	US 280, SR 520, SR 55	Richland By-Pass	Richland	0		Less than 75 feet

Appendix H

Pavement and Roadway Deficiencies Two and Three Lane Portion of HPC 6 Mainline (not currently on GRIP System)

Two and Three Lane Portion of HPC 6 Mainline not Currently on the GRIP System

Roadway	Location	Need Widening to Four Lane Divided Roadway or Freeway?	Need PCC Pavement with Full Depth Shoulders?	Potential Bottleneck Intersections
SR 96	From Fort Valley Bypass to I-75	Roadway	Yes	1) Downtown intersection in Fort Valley at US341 and SR49, 2) Intersection of SR96 at I-75, 3) Intersection of SR96 at US41
SR 96	I-75 to US 219 /SR247	Freeway	Yes	1) Intersection of SR96 at Houston Lake Road, 2) Intersection of SR96 at Moody Road
SR 96	US219/SR247 to I-16	Roadway	Yes	N/A

N/A - Not Applicable or Data Not Available

Appendix I

Two or Three Lane Connecting with Capacity Deficiencies

Two or Three Lane Connecting Roads with Capacity Deficiencies

Area	Roadway/Location	Max. 1998 AADT	Max. 2025 AADT	Prog. in the CWP	1998 Needs	2025 Needs	Max. Percent Trucks	Adeq. Shlder Width? (min 6ft.)	Potential Bottleneck Intersections	Key Inter. needing White-topping
Columbus	SR 219 from SR 103 in Harris County to Bradley Park Drive / Green Island Drive	7400	12700	PL	PL	4-Lns	2	No	SR219 and US80 / SR85 / US27 Alt	None
	US 27 / SR 1 from SR 116 in Harris County to Moon Road in Muscogee County	9700	30115	O	PL	4-Lns	15	Yes	US27 / SR1 and US80 / SR85 / US27 Alt	None
	US 27 Alt / SR 85 from SR 208 in Harris County to Ellerslie in Harris County	7200	11600	W	PL	4-Lns	15	Yes	US27 / SR1 and US80 / SR85 / US27 Alt	US27 Atl / SR 85 and US1 / SR27
	SR 22 Spur from I-185 to US 80 / SR 22	6900	8300	W	PL	PL	5	Yes	None	None
Reynolds										
	SR 128 from SR 96 in Taylor County to US 341 / SR 7 in Crawford County	12300	N / A	No	4-Lns	N / A	15	Yes	None	None
Fort Valley										
	US 341 / SR 7 from SR 49C in Peach County to SR 42 in Crawford County	4800	5800	PL & O	PL	PL	15	No	None	None
	US 341 / SR 7 from SR 96 in Peach County to I-75 in Houston County	8400	13000	W	4-Lns	4-Lns	15	No	US341 and SR96	US341 and SR96
Warner Robins										
	US 129 / SR 247 to SR 247spur	4600	12000	No	PL	4-Lns	15	No	SR96 at US 129 / SR 247	SR96 at US 129 / SR 247
Perry										
	US 41 / SR 11 from SR 11C to SR 247C	5700	7200	No	PL	PL	15	Yes	None	None

N/A - Not Applicable or Data Not Available
PL - Passing Lanes
4-Lns - Four Through Lanes
W - Widening
O - Other Improvements

Two or Three Lane Connecting Roads with Capacity Deficiencies

Area	Roadway/Location	Max. 1998 AADT	Max. 2025 AADT	Prog. in the CWP	1998 Needs	2025 Needs	Max. Percent Trucks	Adeq. Shlder Width? (min 6ft.)	Potential Bottleneck Intersections	Key Inter. needing White-topping
	US 341/SR 11 from SR 247 Sp to SR 26 in Pulaski County	7600	11400	W	PL	4-Lns	10	Yes	None	None
Cochran										
	US 129 Alt./SR 87 from SR 96 to SR 26	6500	11600	W	PL	4-Lns	15	Yes	None	None
	SR 26 from US 341/SR 27 in Pulaski County to US 80/SR 19 in Laurens County	6700	9700	No	PL	PL	15	Yes	None	None
Dublin										
	US 441/US 319/SR 31 from SR 117 to SR 19	14200	15400	W	4-Lns	4-Lns	10	Yes	US 441 and US80	US 441 and US80
	SR 19 from I-16 to US 441/SR 31	N/A	6300	W	N/A	4-Lns	7	Yes	None	None
	US 441/SR 29 from US 80/SR 19 to SR 338	14300	11400	O	4-Lns	4-Lns	15	No	None	None
	SR 257 from SR 338 to US 441/US 319/SR 31	7800	13800	O	PL	4-Lns	10	Yes	US319/SR31 and US80/SR26	US319/SR31 and US80/SR26
	SR 19 from I-16 to Laurens/Wheeler Co line	2800	3100	O	None	PL	22	No	None	None
	US 319/SR 31 from US 80/SR 26 to Johnson County line	8800	7000	PL	PL	PL	15	Yes	None	None
	SR 338 from I-16 to US 80/SR 19	2400	3800	No	None	PL	10	Yes	None	None
	US 80/SR 19 from SR 26 (West of Dublin) to US 319/SR 31 (East of Dublin)	N/A	19500	No	N/A	4-Lns	7	Yes	None	None
Vidalia and Lyons										

N/A - Not Applicable or Data Not Available
PL - Passing Lanes
4-Lns - Four Through Lanes
W - Widening
O - Other Improvements

Two or Three Lane Connecting Roads with Capacity Deficiencies

Area	Roadway/Location	Max. 1998 AADT	Max. 2025 AADT	Prog. in the CWP	1998 Needs	2025 Needs	Max. Percent Trucks	Adeq. Shlder Width? (min 6ft.)	Potential Bottleneck Intersections	Key Inter. needing White-topping
	US 1 / SR 4 from I-16 to US 280	5200	8000	W	PL	PL	10	Yes	None	None
	SR 297 from US 280 to I-16	6700	3400	No	PL	PL	10	Yes	None	None
	SR 15 from US 280 / SR 30 to I-16	4600	8300	PL	PL	PL	15	No	None	None
Swainsboro										
	US 1 / SR 17 from I-16 to US 80 / SR 26	8900	26400	W	PL	4-Lns	10	Yes	None	None
Metter										
	SR 23 from I-16 to Emauel County line	9400	15100	No	PL	4-Lns	15	Yes	None	None
	SR 23 from Tattnall County line to I-16	3700	5700	No	PL	PL	15	Yes	None	None
	SR 129 from Tattnall County line to I-16	2500	2100	O	None	None	10	Yes	None	None
Statesboro										
	SR 67 Bypass	11300	18600	W	4-Lns	4-Lns	10	Yes	SR67 Bypass and US25(south-west quadrant)	US25(north-west quadrant) and SR 67 Bypass, US25(south-west quadrant) and SR 67 Bypass
	US 301 / SR 73 from US 25 to Screven County line	12200	10900	W	4-Lns	4-Lns	10	Yes	US301 / SR73 and US25(downtown Statesboro)	US301 / SR73 and US25

N/A - Not Applicable or Data Not Available
PL - Passing Lanes
4-Lns - Four Through Lanes
W - Widening
O - Other Improvements

Two or Three Lane Connecting Roads with Capacity Deficiencies

Area	Roadway/Location	Max. 1998 AADT	Max. 2025 AADT	Prog. in the CWP	1998 Needs	2025 Needs	Max. Percent Trucks	Adeq. Shlder Width? (min 6ft.)	Potential Bottleneck Intersections	Key Inter. needing White-topping
	SR 24 from US 80 / SR 26 to Screven County line	6100	9900	O	PL	PL	10	No	None	None
	US 301 Bypass / SR 73 Bypass	10800	16200	No	4-Lns	4-Lns	2	Yes	US301 Bypass(south-east quadrant) and SR67	US301 / SR73 and US25
	SR 67 from US 280 / SR 30 in Bryan County to US 25	15300	11000	W	4-Lns	4-Lns	15	Yes	SR67 and US25(downtown Statesboro)	US301 Bypass and SR67, SR67 and US25
Savannah										
	SR21 from SR119 in Springfield in Effingham County to Downtown Savannah	15800	31600	No	4-Lns	4-Lns	15	Yes	None	None
	SR 25 from SR 21 to South Carolina state line (Houlihan Bridge)	9100	9700	W & O	PL	PL	5	Yes	SR 25 and SR 21	None
	SR26 / US80 from Bryan Co to downtown Savannah	9700	27500	W & O	PL	4-Lns	15	Yes	US26 / US80 and CR781, US26 / US80 and SR21	SR26 / US80 and SR307, SR26 / US80 and SR21
	SR404SP in Downtown Savannah	15700	25900	O	4-Lns	4-Lns	10	Yes	SR404SP and US25 Alt. (before Eugene Talmadge Mem. Bridge	SR404SP and US25 Alt. (before Eugene Talmadge Mem. Bridge
	CR781	13100	N / A	No	4-Lns	N / A	2	Yes	CR271 and US26 / US80	None

N/A - Not Applicable or Data Not Available
PL - Passing Lanes
4-Lns - Four Through Lanes
W - Widening
O - Other Improvements

Two or Three Lane Connecting Roads with Capacity Deficiencies

Area	Roadway/Location	Max. 1998 AADT	Max. 2025 AADT	Prog. in the CWP	1998 Needs	2025 Needs	Max. Percent Trucks	Adeq. Shlder Width? (min 6ft.)	Potential Bottleneck Intersections	Key Inter. needing White-topping
	SR119 in Liberty County from I-16 to I-95	8800	14000	No	PL	4-Lns	15	Yes	None	None

N/A - Not Applicable or Data Not Available
PL - Passing Lanes
4-Lns - Four Through Lanes
W - Widening
O - Other Improvements

Appendix J

Literature Review

Literature Review

***Landside Access to U.S. Ports*, Transportation Research Board, National Research Council, Special Report 238. National Academy Press, Washington D.C., 1993.**

This publication examines impediments to landside access to ports and evaluates and recommends appropriate strategies to reduce these problems. The report examined physical access, land use, environmental, institutional, and regulatory issue impediments. The report suggests that intermodal connections could be threatened by increased bottlenecks in the landside transportation system serving the ports. The report identifies that most bottlenecks occur at a ports back door, where congested roads or inadequate rail linkages to marine terminals cause delays.

***Maritime Transportation Strategic Planning*. Transportation Research Circular, Number 392. Transportation Research Board, National Research Council. Washington D.C., 1992.**

The marine transportation industry being shaped for the 21st century is composed of shipping lines that have rationalized services with traditional competitors, and these lines have struck partnerships with, or fully integrated rail and truck services in order to provide through transport services. Additionally, third-party logistics specialists are an evolving segment of the industry that assemble integrated transport services. Innovation in the industry is aimed at seamless intermodal transport at the lowest cost and responsive to strict timelines. To facilitate a strategic assessment of the maritime industry in this era of rapid transition, and an assessment of its relationship with promotional and regulatory counterparts, a group of 46 attendees representing most facets of the marine and intermodal industry participated in a 3-day workshop conducted by TRB.

The workshop was intended to provide input for the Maritime Administration (MARAD) as that agency considers its research mission for the 1990s and beyond. The report contains both prepared presentations and informal comments from the invited participants. The report identifies strategic trends and issues that are both external and internal to the marine industry and also identifies crucial linkages between a nation's economic competitiveness and its maritime transport efficiency.

***Intermodal Freight Terminal of the Future.* Transportation Research Circular, Number 459. Transportation Research Board, National Research Council. Washington D.C., 1996.**

This Circular contains the papers presented at the third national conference on the Intermodal Freight Terminal of the Future. The papers describe the state-of-the-practice in management issues and technology issues as perceived by leaders in North American and European terminal planning. The papers are organized according to the following topics: Global Economics and Forecasting for Tomorrow's Terminal; The Terminal's Operating Environment; Landside and Shoreside Partnerships; Intermodal Terminal Design; European Perspectives; Terminal Planning and Operations in Transition, Part A and Part B; Information Technologies; and New Directions.

***Freight Transportation: Planning, motor Carrier Size and Weight Issues, International Trade, and Hazardous Materials Transport.* Transportation Research Board, National Research Council, Transportation Research Record, No. 1613. National Research Council, Washington D.C., 1998.**

***New Trucks for Greater Productivity and Less Road Wear: An Evaluation of the Turner Proposal*. Transportation Research Board, National Research Council, Special Report 227. National Research Council, Washington D.C., 1990.**

This report, prepared by the Transportation Research Board Committee for the Study of Relationships Between Vehicle Configurations and Highway Design, evaluates the approach to regulation of the size and weight of trucks using U.S. roads known as the Turner Proposal. This approach had its origin in a proposal put forth in a 1984 address to AASHTO by former Federal Highway Administrator Francis C. Turner. The approach evaluated by the committee differs in an important respect from Turner's original concept: in the committee's approach, use of the new trucks would be voluntary; that is, truck operators would be offered the choice of continuing with existing equipment and weight rules or adopting the new trucks with the new weight regulations. The committee designed a package of changes in size and weight limits, safety restrictions, and procedures regarding bridge deficiencies, routing, and enforcement that would be a practical regulatory scheme for implementing the Turner concept. The committee recommends that every state, with careful assessment of the risks and uncertainties, consider this proposal as a supplement to current size and weight regulations. If Turner trucks were adopted in all states according to the recommended rules, they would reduce the cost of shipping freight and would not degrade safety. The total cost of maintaining the road system would be reduced, although pavement wear savings would be partially offset by higher bridge costs.

***Effects of heavy-vehicle characteristics on pavement response and performance.* NCHRP Report 353, Transportation Research Board, National Academy Press. Washington DC, 1993**

The high wheel loads of heavy trucks are a major source of pavement damage by causing fatigue, which leads to cracking, and by permanent deformation, which produces rutting. Among heavy trucks, all do not cause equal damage because of differences in wheel loads, number and location of axles, types of suspensions and tires, and other factors. Further, the damage is specific to pavement properties, operating conditions, and environmental factors. The mechanics of truck-pavement interaction were studied to identify relationships between truck properties and damage (fatigue and rutting). Computer models of trucks were used to generate wheel load histories characteristic of the different trucks and operating conditions. Influence functions, obtained from rigid and flexible pavement structural models, were used to predict responses along the pavement resulting from the truck motions. The pavement responses were evaluated to estimate overall pavement damage caused by each truck. The study assessed the significance of truck, tire, pavement, and environmental factors as determinants of pavement damage. Maximum axle load and pavement thickness have the primary influences on fatigue damage. Truck properties, such as number and location of axles, suspension type, and tire type, are important but less significant. High temperatures in flexible pavements and temperature gradients in rigid pavements adversely affect the damage caused by truck wheel loads with a fairly strong interaction. The report discusses and quantifies the influence of these variables.

***PCCP Intersections Design and Construction in Washington State.* Washington State Transportation Center. Report No. WA-RD-503.1. May 2001.**

This report summarizes information related to the use of Portland cement concrete (PCC) for urban intersection construction in Washington State. In 1994, Washington State DOT began using Portland cement concrete to reconstruct urban intersections. The report documents fifteen intersections within the state that have been reconstructed using PCC. The report mentions that constructing high traffic intersections with PCC eliminates the significant rutting problems that sometimes occur with asphalt roadways. The report includes lessons learned about PCC intersection construction costs, life-cycle costs, traffic control and staging, design, and construction considerations, and quality control issues.

Appendix K

U.S. 280 Travel Time Study

US 280 Travel Time Runs

The identification and elimination of bottlenecks is very important to expediting the flow of goods along a high volume freight corridor. As a form of system evaluation, travel time runs were conducted for congested areas of the US 280 corridor.

One Time Drive Through of US 280 Corridor
The entire US 280 corridor, from Richland in Stewart County to the US 280/I-16 interchange in Bryan County, was driven one time noting stops and areas where driving speeds are less than 40 miles per hour. This overview addresses, in a general way, any areas not covered in the detailed travel time runs. These "congested" areas include:

Plains
- around peanut and grain processing plants
- west side: SR 45
- east side: Hospital Street

Americus
- the travel time study area
- around Muckalee Creek
- east side: SR 27

Cordele
- the travel time study area
- railroad grade crossing just west of US 41 intersection
- west side: Joe Wright Drive
- east side: SR 90

Rochelle
- railroad grade crossing east of city

Rhine
- Posted speed limit drops to 25 mph

McRae
- the travel time study area
- west side: Sugar Creek

- east side: Andrews Street (just past Buddy's Sports Place)

Alamo
- cars parked along US 280 through downtown area

Vidalia
- the travel time study area
- west side: Darby Drive
- east side: Commerce Way

Lyons
- the travel time study area
- west side: Walnut Street
- east side: East Grady Avenue

Reidsville
- the travel time study area
- west side: SR 56
- east side: Alexander Avenue

Bellville
- railroad grade crossing
- just west of the intersection with SR 292

Claxton
- the travel time study area
- west side: El Cheapo Gas Station
- east side: SR 129

Travel Time Study
Detailed travel time studies were conducted along sections of the US 280 corridor where congestion is known to occur or where speeds are expected to consistently drop below 40 miles per hour (mph). Seven areas were identified with low driving speeds. These areas hold the greatest potential for future delays if not identified and corrected. Sections of US 280 through each South Georgia city studied are listed below along with the length of the study route for each section.

- Americus – approximately 9 miles

- Cordele – approximately 4 miles
- McRae – approximately 3 miles
- Vidalia – approximately 4 miles
- Lyons – approximately 2 miles
- Reidsville – approximately 2 miles
- Claxton – approximately 1 mile

Methodology
Travel time varies inversely with travel speed. Travel time studies, sometimes called speed and delay studies, measure vehicular speeds and usually delay during the course of a travel run. Travel runs are made over a fixed distant, and vehicle speed and delay are measured along the route. Travel time and delay characteristics are good indicators of the level of service that is being provided and can be used as a relative measure of efficiency of flow.

Using the "floating car" technique, the study vehicles "float" with traffic. The term "floating" refers to an attempt to pass as many vehicles as pass the test car. In this study, six travel time runs were made in each direction to identify areas where congestion and stops consistently occur. The more travel runs completed, the more reliable the results. By viewing a composite graph of speed versus distance, overlaying all six runs in each direction one on top of another, one can easily identify areas where congestion consistently occurs and can see the number of times speeds dropped in each area.

Time of Day
Travel times were performed for each location during one of the peak periods: AM, Noon or PM. The chief of police or their equivalent was contacted in each city to identify the time of day when traffic is heavy. In general, traffic is heaviest during the following time periods, and runs were conducted during one of these times.

- AM Peak – 6:00 to 8:30 AM
- Noon Peak – 11:00 AM to 1:30 PM
- PM Peak – 4:00 to 6:30 PM

These studies were a planning tool to generally identify areas of congestion and were not intended to provide the level of detail nor the cost of travel time studies used in signal system timing before and after studies.

Hardware and Software

Two vehicles were used for the travel runs. A speed sensor connected to the transmission of each vehicle was linked with a Jamar TDC-8 count board. This electronic count board collected speed and delay data while the vehicle was in motion. Back in the office, the data was imported into the Jamar PC Travel software, which develops speed versus distance graphs.

The following narrative describes studies in each city, where congestion occurred and potential improvements that could be considered in the future. A detailed summary for each run in each travel area is listed in the Appendix of the report.

Americus

The travel time runs conducted in Americus were during in the PM peak. US 280 flows east-west through downtown. East and west of downtown, US 280 consists of two and four lane sections, respectively. US 280 follows a one-way pair through downtown between the intersections of US 19 South/SR3 and SR 49 (North). The one-way pair consists of two to four lane sections. Although the one-way pair provides more capacity than a single road, traffic was very congested, and truck volume was heavy. Curb parking and signals at almost every intersection in downtown contributed to frequent stops and delays.

Analysis

The travel time runs took place along a nine-mile section on US 280. The route started on the west side of town at Claude Harvey Road and ended on the east side of town at the intersection of Lamar Street. Both the eastbound and westbound travel runs experienced delays on US 280 between the intersection of SR 49 (South) and SR49 (North). Frequent stops and significant delays consistently occurred along the one-way pair from US 19 to SR 49. Average speeds in this section range from 20 to 30 mph. A contributing factor to the heavy traffic in downtown is the number of major routes feeding into the City: US 19, SR 377 and SR 49.

Potential Improvements

1. Consider an east-west bypass south of downtown from the US 19 (South) intersection to US 280 just west of the bridge over Murphy's Mill Creek.

2. SR 49 relocation, to new location on the south side, from the US 19 (South) intersection to the US 280 one-way pair intersections with SR 49 (North).

3. Two complete circumferential loops around Americus would improve connectivity and allowing some traffic to avoid the congestion in downtown (see sketch).
   - an inner loop, within one mile of the downtown
   - an outer loop, within three miles of downtown

Cordele

Travel time runs were conducted in Cordele during the PM peak. US 280 flows east-west through town. East and west of town, US 280 carries two lanes, but in the central area of the town, from US 41/SR 7 to Albany Road, the roadway widens to a four-lane section. The railroad just west of US 41/SR 7 carries many trains per day. During this study in the PM peak period, three trains crossed US 280. The I-75 interchange ramps had long queues, perhaps because neither ramp terminal was signalized.

<u>Analysis</u>
The travel time route consisted of approximately four miles on US 280, beginning on the west side of town at Albany Road and ending on the east side of town at the intersection of Midway Road. Both the eastbound and westbound travel runs experienced delays near US 41/SR 7 and Pecan Road. Delays were most noticeable when trains were crossing near the intersection of US 41/SR 7. Stop-and-go traffic was experienced between US 41 and I-75. At the I-75 interchange, queues on filled the ramps to capacity. If traffic continues to increase, raps queues will spill back onto the I-75 mainline. Along US 280, progression was not too bad.

<u>Potential Improvements</u>
1. Upgrading the signal system and better signal system timing could reduce delays on US 280 from Joe Wright Drive to Midway Road. These are low cost improvements, and the affect would be immediate.

2. Choose either alternate 2a or 2b.
   a. Provide a bypass around the south side of town beginning at Coney Road. The bypass would generally follow the alignment of

Crossroad Store Road from US 280 to SR 300, although at times the bypass may go on new alignment probably west of Crossroad Store Road. The alignment of the bypass would follow SR 300 from Crossroad Store Road to I-75 and continue on new location to US 280 just east of the Cape Road intersection (see sketch with dash line representing the bypass on new location and solid line representing the bypass on existing road).

b. As an alternate to 2a, grade-separate the railroad crossing near US 41 intersection with a bridge over the railroad and over US 41.

3. Upgrade the I-75 interchange by providing longer ramps for longer queues. Consider signalizing the ramp terminals. Provide longer left turn storage lanes on US 280. Consider separating the ramps further away from I-75.

McRae

Travel time runs were conducted in McRae in the AM peak period. US 280 flows east-west through town. Most of this section of US 280 has two lanes except for a short half-mile section just east of US 441/ SR 31. Heavy school bus traffic was observed during the AM peak.

<u>Analysis</u>
The travel route covers approximately three miles starting on the west side of town at a middle school located just west of US441/SR 31 (South). It ends on the east side of town at the intersection of US 441/SR 31 (South). Both the eastbound and westbound travel runs experienced delays at the intersection of US 341 and Willow Creek Road due to signals. Traffic was "stop-and-go" through the one-way pair at US 341 in the heart of downtown. Signal system timing was not well coordinated. Traffic slowed at the railroad crossings just east of the one-way pair. US 280 is a side street controlled by a stop sign where it intersects with US 441. This is followed by an immediate yield in the median. There is only enough storage in the median opening for about two cars and is potentially a safety problem. Overall, delays were relatively minor throughout the system.

<u>Potential Improvements</u>
The proposed bypass around McRae should address problems experienced on US 280.

Vidalia

Travel time runs were conducted in Vidalia during the Noon peak period. US 280 flows east-west through town. US 280 is a five-lane section from Slayton Street to the east of town. West of Slayton Street it is two lanes with no turning lanes. There is a lot of development from Slayton Street to SR 130, which contributed to the congestion during the travel time runs. In the downtown area, shoulders are narrow and frequent driveways contributes to stop-and-go conditions.

Analysis

The travel route covers approximately four miles on US 280. The route started on the west side of town at the intersection of Sunset Drive and ended on the east side at Harris Industrial Boulevard. Delays occurred during both the eastbound and westbound travel runs between the intersection of SR 130 and Broadfoot Road. Stops and long delays occurred on US 280 near the intersections of SR 130, Church Street/McIntosh Road and Broadfoot Road. Average speeds in this section ranged from 15 mph to 25 mph in both directions.

Potential Improvements

Three alternates should be considered to facilitate the east-west flow of traffic on US 280.

1. a bypass around north side of town has previously been conceived (see dashed line on map),
2. a complete 360 degree loop around Vidalia, or
3. a one-way pair from east of Broadfoot to west of SR 130 using First Street eastbound and Main Street westbound. Note that a one-way pair has been discussed for several years but has not been implemented. Also note that the one-way pair through Americus continues to experience considerable delays.

The railroad bisects Vidalia. A study to determine the best locations for two or three new grade separations should be conducted. This would help to knit the community together.

Lyons

Travel time runs were conducted in Lyons in the PM peak. US 280 flows east-west through town along two lanes. The only traffic signal experiencing a minor delay is US 1, which is located in the center of town.

Analysis

The travel route consisted of approximately a two-mile section on US 280 starting on the west side of town at the intersection of Bank Avenue and ends on the east side of town at the intersection of Wilson Avenue. Both the eastbound and westbound travel runs experienced delays on US 280 near the US 1/SR 4 intersection. Average speeds in this section dropped to less than 20 mph in both directions.

No improvements are necessary at this time.

Reidsville

Travel time runs were conducted in Reidsville in the PM peak. From the west, US 280 flows southeast into downtown Reidsville and then northeast out of town toward Claxton. This section of US 280 carries two lanes.

Analysis

The travel route consisted of approximately a two-mile section on US 280. The route started on the west side of town at the intersection of SR 56 and ended on the east side at Griffin Road. Both the eastbound and westbound travel runs experienced delays on US 280 near the intersection of SR 23. Delays were relatively minor throughout the system.

No improvements are necessary at this time.

Claxton

Travel time runs were conducted in Claxton in the PM peak period. US 280 flows east-west through town on two lanes.

Analysis

The travel route consisted of a one-mile section on US 280. The study began on the west side of town at Dean Road and ended on the east side at North River

Street. Both the eastbound and westbound travel runs experienced delays on US 280 near the intersections of SR 129 and US 25/ US 301/ SR73. Average speeds in this section ranged from 15 mph to 20 mph in both directions. Although stops and delays were relatively minor, they occurred consistently at these locations.

No improvements are necessary at this time.

Speed vs. Distance Profiles

A travel time (speed versus distance) profiles in the Appendix provide an overall view of the travel time runs and plots them for a visual analysis. These plots are provided for each area in each direction. The heavy weighted line indicates the average of all six runs in that particular direction. Additional summary material is provided in the Appendix.

Appendix L

Stakeholder Meeting Comments

Americus

- Leslie Bypass – would like to see road come through town.
- US 280 through Webster County – does not need to be classified as "poor road condition".
- Downtown Americus – congestion.
- US 280/US 19 intersection – study intersection – configuration/ number of lanes – cars back up westbound on US 280 at US 19
- Americus needs an eastern by-pass from US19 South to SR49 north of Americus. Southern by-pass around Americus (SE by-pass) is needed.
- Technical data – future congestion may occur on SR 377 and SR 195 into Leesburg – reevaluate route from SR 118/SR 377 to Leesburg.
- SR 49 South from Americus to Dawson – road surface is fine – sharp and dangerous curve on road.
- Downtown Vienna @ SR 27 and SR 41 – on city square – hard for trucks to make turns – causes congestion with cars backing up.
- Cordele has too many at grade railroad crossings – US280/41/SR90
  2nd/17th/15th/14th-12th/18th-20th/22nd/24th – NS
  CSX/HOG Railroads: Midway/Greer/Pecan/1st St./2nd-3rd St./6th-8th St./11th-12th St./15th St./Fish Hatchery Rd./Burnett Blvd.
- I-75 Dooly Co. – SR300
- SR257 and Midway Rd. intersection is unsafe
- How will US280 (GRIP) enter Cordele
- US280 and 15th St. – needs traffic signal – lots of traffic and school buses.
- Turn lanes from side streets onto US280 are needed.
- There may be ITS solutions in downtown Americus
- US 280 – 3 miles east of Plains - culvert is inadequate.
- SR 26 should be reviewed for volume to capacity analysis
- SR 30 intersection with SR 153 – poor sight distance – many accidents – several fatalities.
- School age student population along east and west outer limits of Americus.
- US 82 in Randolph County should be reviewed (outside of study area)
- American Protein – may be a traffic generator west of Americus.
- SR 377 south of Americus – no congestion.
- Study should include more of the economically lagging counties south of the present study areas. (I.e. Randolph Co.)
- SR 308 – curve radii should be increased. 3 ½ miles from SR 19 (already in CWP)
- SR 27 Americus to Vienna over Flint River is inadequate.

Columbus

- Macon Road – US 80/SR 96 – area does not seem congested – currently by being 4-laned.
- US 280 – data indicates poor road condition Columbus to Cusseta – does not seem to be in poor condition (in wet conditions may be unsafe).
- SR 26 – New high school to be built in 2006 five miles east of US 280 – will create additional congestion – this is a freight shortcut and military cut through.
- Map Code # 249 – this is not a bad intersection – there is a signal there SR 27/SR 520 intersection
- Speed limit is 55 mph Columbus to Richland south of Ft. Benning – why is it 55 mph? Could it be higher?
- South of Talbotton along SR 96 onto SR41/US80 and on through Talbotton and through Upson – congestion/loggers/narrow lanes/lots of trucks.
- JR Allen Pkwy at the ramp at River Road, at night when it is dark, it is hard to see – confusing interchange safety hazard (exit #2)
- Rail line along US 280 providing access thru Richland to Jacksonville, FL is now closed.
- Safety along US 280 is of concern.
- Overpass near Cusseta – big hill blocks sight distance.
- US27 @ US280 – two hills and sun problems.
- Realign RR or eliminate RR crossing in Cusseta to improve E-W travel
- Upson County needs a bypass around Thomaston.
- *East bypass of I-185 – east of Ft. Benning.*
- SR41 Talbotton to Manchester in Talbot County - passing lanes/widening
- *SR26 carrying east/west trucks to coast. Montezuma – Vienna.*
- *SR315 and US27 and RR crossing .*
- SR 208 intersection with SR 85 has poor turning radii and possible truck generation in the area of Waverly Hall in Harris County.
- Perceived deficiency and congestion for 2025 along SR 190 in Harris County (high growth areas).
- MPO in Columbus will conduct a study in 2003 of the “spider web” where Buena Vista, St. Mary’s and other streets intersect west of I-185.
- Intersections of SR 27 and US 280, and of SR 26 and US 280, in Chattahoochee County, are unsafe/poorly marked.

Dublin

- US 441 and SR 57 new signal – no longer needed
- US 280 in Dodge Co. – poor road condition.
- US 23 southeast of Eastman – heavy congestion - new 4 lane helps.
- More attention to bridges statewide is needed.
- New US 280 location in Wilcox County is a concern.
- Vienna through Hawkinsville and Cochran to Dublin (off I-75) – heavy container trucks
- SR 26 off I-16 – heavy container trucks
- Truck route around Cochran east/west is needed - would like to have a truck bypass study.
- SR 26 and SR 87 bypass – intersection appears to be dangerous.
- SR46 and US441 intersection - widening of US441 may cure problem
- SR 441 bypass around to the southeast not on constructional map. (construction plans complete, therefore is not listed in CWP).
- US 280 expansion and the impact on downtown McRae – May be best served with a bypass north of McRae and Helena.
- General configuration of US280 using bypass of the downtowns.
- 3 developmental highways focus on downtown McRae/Helena/Telfair Co. – coordinated - need a bypass close to the downtown area to help development to grow outward.

Macon

- Evaluate US 129 as whole double check the technical data (traffic counts and est.) from south of Macon to North of Warner Robins.
- SR 96 east of I-75 @ US41 and Houston lake Rd. – signalizations.
- I-16 @ SR96 interchange – poor sight distance on ramps w/SR 96 - high accidents.
- I-475 – pavement.
- CR 71 (Pooler Rd.) Twiggs Co. – poor pavement condition.
- I-75 @ I-475 (south of Macon)– speed up interchange reconstruction.
- Emery Hwy. @ Emery Rd. – potential signal needed - lots of freight traffic – poor pavement.
- US 80 – lots of timber trucks – congestion – poor pavement condition.
- US 80 truck turning radii improvements needed.
- I-16 and I-75 interchange reconstruction – speed up project.
  16 and I-75 interchange improvements needed.
- I-75 @ Arkwright Rd. – needs ramps extended/reconstructed.
- I-475 construction complete.
- US 41 project improvements complete.
- Gray Highway – and a cross county connector.
- MLK Blvd. – heavy truck traffic – logging trucks – heavy congestion.
- Truck traffic on SR 49 moving to OKM East Industrial Park (Milledgeville) SW to OKM East Industrial Park SR 49 to Gray Highway to I-16
- SR 74 – poor road condition in question.
- Warner Warner Robins Air Force Base SR 247 – Safety and capacity issue.
- US41 through Vineville historic preservation and capacity issues – highly congested.
- TMC operation signal control – VMS – and other ITS operations.
- Way finding – signage improvements.
- SR 96 from US/29/SR 87 to I-16 and on to Jeffersonville – need passing lanes – sharp curves.
- US 441/SR 96 – bad intersection – Wilkinson Co. turning radius is bad.
- SR 96/I-16 – prime industrial location – will need to be improved in the future.
- Need an east/west corridor north of SR 96 – possibly near or along SR 74 to connect to I-85 via SR 100
- Military Freight movement from Ft. Benning to Ft. Stewart. SR 28, SR 96, I-16 are impacted by these "Military Freight" movements.
- SR 96 from US 41 to I-75 should be indicated as a deficiency.
- Map Code #146 - SR 127 through Perry should not be considered as a project. Freight traffic through Perry should not be encouraged.

Savannah

- Map Code #354 – 1-16 instead of I-95 as location
- Derenne Avenue – Abercorn to Truman Pkwy. is all congested.
- US 80 from SR 21 to Dean Forest Rd. –
  Congestion is increasing and will be congested by 2025
  potential safety issues: signals/turn lanes/acceleration and deceleration lanes needed
- I-95 and SR 204W – congestion in Chatham County to Bryan County Line – will need improvement before 2025.
- Industrial growth in Pooler due to proximity to port.
- Map Code #412 not on table
- Map Code #231 – Change I-516 to SR 21 & Abercorn – it changes to SR 21 before intersecting with Abercorn.
- Bay Street from MLK to President has been identified as congested – need to add that is also has safety problems.
- Water taxis to islands in case of emergency should be explored.
- Dean Forest Road - US 80 to the Port (south of SR21) – 3RR crossings – all need to be grade separated.
- SR37 in Liberty/Long County – about 9 miles south of Hinesville – development needs to be studied – future congestion likely.
- Savannah - Truck Traffic dumps into downtown as I-16 ends. Truck traffic should be directed around downtown as it is headed to President Street/Tybee Island.
  Short-term solution: Route from I-16 to I-516W to Bay Street.
  Long-term solution: Reconstruction of Derenne Ave. (SR21) from I-516 to Truman Parkway. All truck thru-traffic should be directed on this route. (Major Investment Study is underway)
- Garden City – in fill development study needs to be conducted.
- Pembroke – concerned about US280 expansion need to look at bypass and impact on downtown parking along US280 very important to downtown business.
- SR119/US280 – intersection design issues, turning issues, high accident rates
- SR67/SR119 intersection is needed.
- Alignment change of SR119 north of US 280 is needed.
- US280 east of downtown (black creek) roadway configuration needs to be examined.
- SR204 upgrade needed to access I-95 from the west-east (hurricane evacuation route also)
- Industrial park at US280/I-16 may be expanding
- I-16 at SR307 interchange needs to be examined
- SR119 closure Ft. Steward – permit process in place
- SR144 bypassing Ft. Stewart to the south is being studied.
- Effingham County – Springfield SR119 roadway configuration with trucks. Bypass of truck traffic around Springfield is needed.
- Effingham County – Rincon needs a bypass on SR21 to move freight traffic.

Vidalia Notes

- SR 199 out of Montgomery Co. toward Dublin – needs to be widened.
- SR 297 needs access onto US280.
- SR 15 South from US280 to US1 new location by-pass of downtown is a possibility
- Industrial Growth Corridor – is located along US 280. SR16 N to SR16 S – Could be used as a truck route to bypass downtown.
- US 280 Corridor needs access; not a high speed throughway.
- Make SR 292 one way pairs in Lyons.
- SR 204 from current end of US 280 in Lanier to I-95 is a second major evacuation route.
- SR 199 – Provides north/south access to/from I-16 to US 280.
- SR 19 – should be continued through entire study area to provide access from Brunswick to I-16.
- Signal coordination on US 280 when one-ways are complete.
- Rail line path US 280 conversion to green way/fiber optic/etc.
- Access issues along US 280 – make sure access is being provided.
- SR130 "short cut" around intersection of US 1 and US 280. Map Code #285 should be listed also as a bad intersection due to safety issues along SR 130.
- SR 297 needs access to US 280. SR 292/US 280/SR 297 intersection improvement needed.
- Intersection US 280 and US 221 intersection design is bad - trucks can't turn.
- Intersection of US 280 and US 441 should be evaluated due to high accident rates.
- US 280 bridge over Ochwaukee Creek is too narrow. There have been many accidents.
- US280 in McRae at the Norfolk Southern Rail Line. A grade separation should be evaluated and the water problem should be examined.
- SR121 widen to alleviate traffic on other routes – encourage economic development (connect I-16 to US280).
- US 57 from Swainsboro to Reidsville is a major connector between US 280 and I-16 for economic development .
- Hurricane evacuation routes need to be studied.
- SR121 @ I-16 upgrade interchange.
- Upgrade I-16 @ Pulaski-Excelsior Rd. interchange. Provides access to campground and Statesboro.
- Improve connections between Ft. Gordon and Ft. Stewart through Metter.
- Add rest area to map – near SR57.
- An interchange is desired at SR 129 and I-16.
- On SR 341 south of US 80, there is a prison, school, and recreation center. Turn lanes and decel lanes need to be considered.